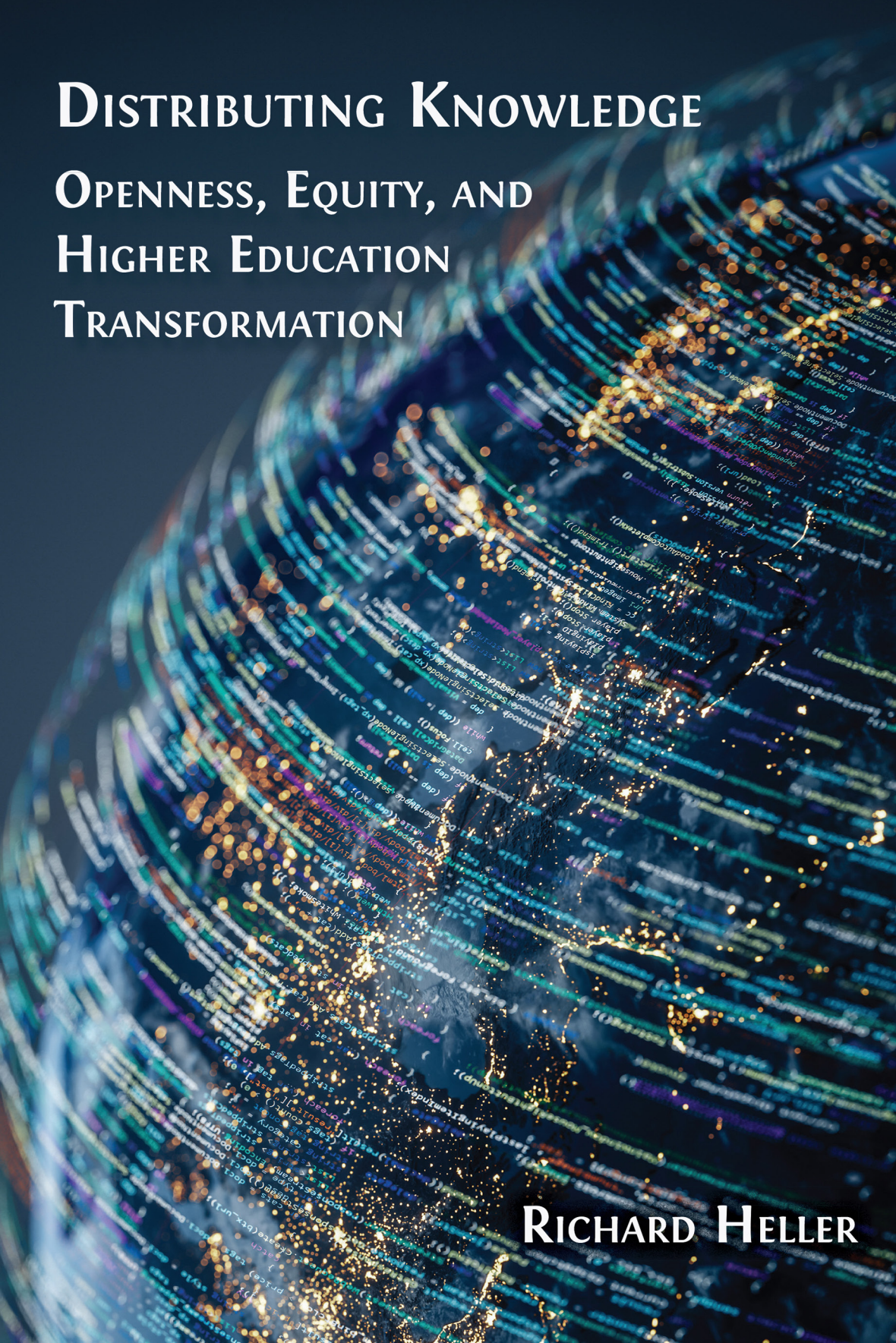




DISTRIBUTING KNOWLEDGE

OPENNESS, EQUITY, AND HIGHER EDUCATION TRANSFORMATION

RICHARD HELLER

DISTRIBUTING KNOWLEDGE

Distributing Knowledge

Openness, Equity, and Higher Education
Transformation

Richard F. Heller

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*To my wife, Ann, and daughter, Jane, who
are passionate advocates for education as well
as both being gifted educators, and to my
granddaughters, Ella and Maisie, who I hope
will continue this interest in education.*

Author's biography

Richard Heller, Emeritus Professor of Medicine, University of Newcastle, Australia and of Public Health, University of Manchester, UK, has a medical degree and doctorate from the University of London, United Kingdom. He was Professor of Clinical Epidemiology and Community Medicine at the University of Newcastle, Australia and Professor of Public Health at the University of Manchester, United Kingdom. Richard was also the founder and coordinator of the People's Open Access Education Initiative (<https://www.peoples-uni.org/>), which aimed to provide Public Health capacity building in developing countries at low cost, through e-learning using open access resources on the internet, and leading to an MPH degree. Recent work has been in conjunction with the West and Central African Research and Education Network (WACREN) to develop Diamond Open Access initiatives for public health in Africa. He authored *The Distributed University for Sustainable Higher Education* and was co-editor of *Stories of Hope: Reimagining Education*.

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Brief overview of the book

Inequity is everywhere in higher education. There is inequity in the dissemination of knowledge, with global, regional and social variation in access to higher education; there is inequity in the creation of knowledge through the way the experiences of populations and groups are under-represented in research; there is inequity in the publication of research and in resulting educational resources. The higher education sector is failing in its mission to focus on public good, and allows inequity within the sector itself.

Corporatisation of the knowledge economy is largely responsible, with universities becoming large business enterprises. Intrusive managerialism is rife, staff lack the autonomy to which they aspire, and there is gross inequity between high-paid executives and academic staff—many of whom are on precarious contracts. Education has become a commodity rather than serving a societal purpose. Advances in the way that information is transmitted today are relegated to the periphery of learning practices. The provision of educational technology is dominated by the private sector for profit (and for captured data), and the publication of research findings dominated by big business. There is an urgent need to transform the sector so that it can survive and prosper to serve and respond to the challenges of today and tomorrow.

Luckily, help is at hand. Universities are staffed by committed people who offer hope for the future of the sector. There are many wonderful examples of innovative ways in which knowledge can be distributed, both in terms of its delivery as education, and its production through the performance and publication of research. There are many ways in which education has evolved that offer solutions to some of the barriers to achieve knowledge equity. Most of these solutions are based on new digital options. The lecture is no longer the primary gateway to knowledge; online materials offer broad access, though they must be curated to ensure quality.

AI plays into the digital revolution in ways we are only just beginning to appreciate (however, care must be taken as the private sector and its profit motive plays an increasing role). Knowledge can be distributed online to population groups that currently miss out. There are new ways of accessing and publishing knowledge in an open manner to make it more accessible. A distributed framework can engage a more diverse population in accessing and contributing to education, and can also help universities to become more ethical organisations that respond to global needs and are responsive to climate change. The basic thesis of this book is that we can, and should, take action to distribute knowledge more widely to reduce inequity. The book proposes a framework for distributing both education and knowledge production in order to transform higher education and address structural inequities. Some of the background was covered in my previous book, *The Distributed University for Sustainable Higher Education* (Heller, 2022); this volume extends and develops these ideas further.

The book offers a potential set of solutions where, in a move towards equity, education is largely online and utilises a distributed model where large campuses are replaced by local hubs—which can be physical or virtual. Educational resources are open and can be shared, research involves under-represented populations, and publication focuses on Diamond Open Access journals and books which are community-driven, academic-led, and academic-owned. The carbon footprint of higher education would be drastically reduced, leadership distributed, and thereby managerialism reduced and academic autonomy increased. Collaborative development and sharing of Open Educational Resources reduce the drive to the commodification of education, and open publishing reduces the power of commercial publishers. These various initiatives will increase knowledge equity. The distributed model is consistent with societal moves towards decentralisation of the internet (Web 3.0 and 4.0) and federated IT infrastructures (such as the Fediverse for social media) as well the new Decentralised Autonomous Organisations (DAOs). The adoption of such a model would encourage new locally driven academic environments and research initiatives responsive to societal needs, and increase knowledge equity.

The book ends with a discussion on how to transform towards a distributed model with equity as its defining purpose, and a call for interest in advocating for such change. Each chapter concludes with a

series of steps to be taken towards distributing knowledge for equity, designed to help guide transformation of the higher education sector.

The book takes the reader through these stages:

Part A. Values guiding knowledge equity

Part B. Reducing inequity in creating and publishing knowledge

Part C. Reducing inequity in access to education

Part D. Infrastructure requirements

Part E. How to make the transformation work

Each stage contains chapters that follow the framework for distributing knowledge for equity.

Framework for distributing knowledge for equity

The steps for distributing knowledge for equity are summarised in this graphic which describes a framework with various components that underpin a distributed approach, and which form the structure of the book.

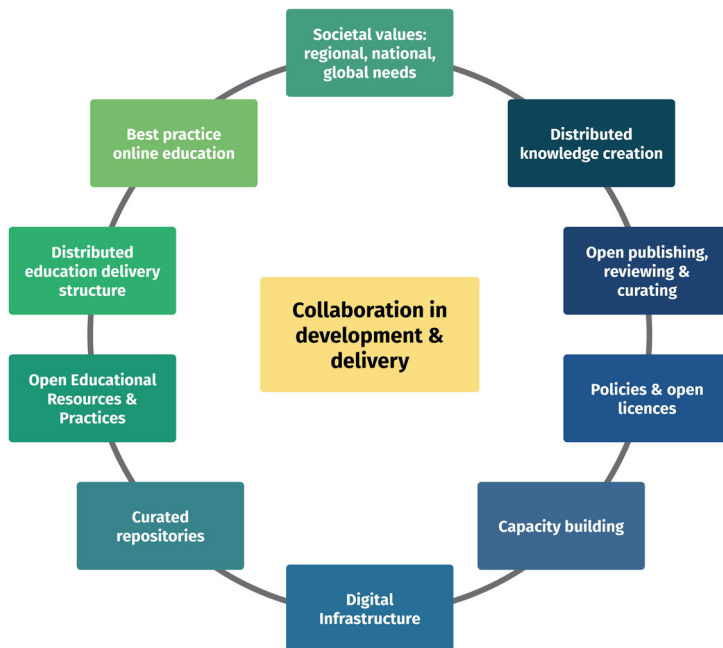


Fig. 0.1 Framework for distributing knowledge for equity. Heller & Leeder, 2025, CC BY 4.0.

Starting the framework at 12 o'clock, we identify the societal requirement for reducing inequities, which is covered in Part A of the book (chapter 1: Societal values: Regional, national, and global needs).

Going round the framework in a clockwise direction, we first find that knowledge creation must be distributed to make sure that population groups whose experiences are often neglected do find their way into research studies. Next, research has to be published openly so that findings are readily accessible by those who would put them into practice—through a transparent process. These aspects are in Part B of the book (chapters 2 and 3: Distributed knowledge creation; Open publishing, reviewing, and curating).

Switching across to 11 o'clock for Part C, we explore how best practice in online education is key to effectively distributing education (note that just putting lectures online is not best practice!). Online education must be organised within a coherent structure, such as the distributed university model, supported by the creation and use of Open Educational Resources and Open Educational Practices (chapters 4, 5, and 6: Best practice in online education; Distributed education delivery structure; Open educational resources and practices).

Part D goes back across to 4 and 5 o'clock on the framework to discuss infrastructure needs. Each of the concepts we cover in this framework has to be underpinned by policies and open publishing licences and by building the capacity for each step. At 6 o'clock, we turn to the need for digital infrastructure and the methods required to distribute both education and knowledge creation. At 7 o'clock, curated repositories for educational resources complete these infrastructure needs, enabling the identification and sharing of best practice resources (chapters 7, 8, 9, and 10: Curated repositories for educational resources; Policies and licences; Digital infrastructure; Capacity building).

In the middle of the framework circle, the need for collaboration in development and delivery is identified as an important component of each area, and comes in the final part of the book—Part E (chapter 11 Collaboration in development and delivery). Part E then discusses how to get started in the transformation of higher education, based on the individual components of the framework for distributing knowledge for equity.

Within the parts of the book, A to E, each chapter takes one part of the framework for distributing knowledge for equity, and explores the reasoning behind it and how the higher education sector can come together to make it happen.

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PART A. VALUES GUIDING KNOWLEDGE EQUITY

Introduction

As will be seen in Chapter 1, there are large variations in the way individuals are able to access education between countries and regions within countries, as well as across various social groupings. While learning ability differs among individuals, the population groups they belong to play an important role in determining their access to learning opportunities. In parallel, the experiences of different people and their environments are unevenly captured by researchers, leading to uneven representation in the research literature and, consequently, in educational programmes. Often, the same groups who are missing from research (and therefore the educational programmes that draw on it) are also those least able to access such programmes. This is what can be termed knowledge inequity, as the stock of human knowledge is biased towards some population groups and away from others.

While we might consider this at any level of education, from primary school through to university and beyond, this book will focus on the university level. It is here that both education and research are performed, often by the same people, and where these issues are explored and where solutions may be found.

Unfortunately, it is the universities themselves that create part of the problem. We see increasing commodification of knowledge through corporatisation of the knowledge economy where universities become large business enterprises. This results in a failure to reduce global, regional and social inequity in access to education as well as in the way knowledge is created. Survival as individual institutions, and a belief that this depends on competition rather than collaboration between them, dominates universities' approach in many societies.

Take the example of international students. In many countries, including Australia and the UK, the fees from international students are higher than the cost of providing their education and the profits are used to cross-subsidise education and research for the university as a whole. Students from rich countries (and their rich parents) are represented much more highly among the international student population than those from countries at greatest need for capacity building—which tend to be much poorer. This ethical dilemma is usually ignored both by the universities themselves and their governments' policies.

Similarly missing is a lack of real attention to mitigate the effects of universities on climate change through their carbon footprint. Buildings and the travel required to reach them, by staff and students (particularly international students), as well as university practices such as student field trips and conference attendance all leave a carbon footprint. Despite a number of ways in which the sector says it is attempting to deal with this issue, some of which are genuine and others no more than greenwashing, the structure of the current university makes it impossible to achieve real impact.

There have been many calls for the 'Good University' where social outcome is the primary goal. Many individual committed academics with a social conscience work hard to pursue a social goal in their teaching and research, but structural transformation will be required to achieve real change. So, the book starts in Chapter 1 with a discussion of inequities and the societal values that should underpin the delivery of higher education.

1. Societal values: Regional, national, and global needs

This chapter identifies the major sources of inequity in access to education—and hence the need for improvement—while also examining the role of the university in developing theory and practice relating to major societal issues and discussing whether universities are ethical in their response to societal need. The chapter then starts to identify how a distributed approach can reduce knowledge inequity.

Regional, national, and global needs

Inequity is everywhere in higher education, between countries, between regions, and social and economic groups within countries. These graphs demonstrate some of the issues.

Starting with a world view, we can explore a whole series of graphs from Our World In Data (Ritchie et al., 2023). Here are just two. Don't worry about the actual figures, it is the variation between countries that should interest us:

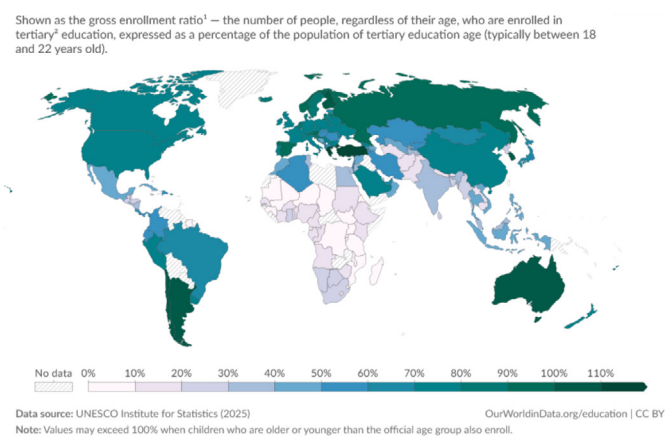


Fig. 1.1 Share of people enrolled in tertiary education, 2023. Ritchie et al., 2023, CC BY 4.0.

You can't get to university if you have not completed secondary school, and some never get to school at all:

The share of adults aged between 15 and 64 years old with no formal education.

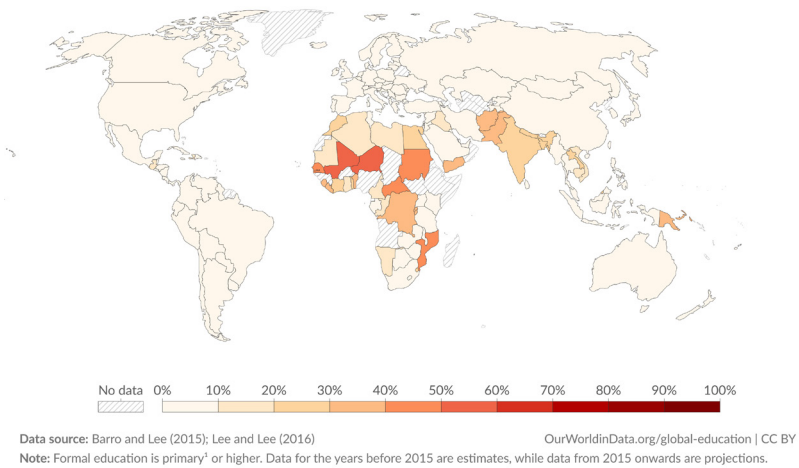


Fig. 1.2 Share of population with no formal education, 2020. Ritchie et al., 2023, CC BY 4.0.

A composite picture of total years of schooling is seen here:

Learning-adjusted years of schooling¹ among children combine the quantity and quality of education into one metric, accounting for the fact that similar durations of schooling can yield different learning outcomes.

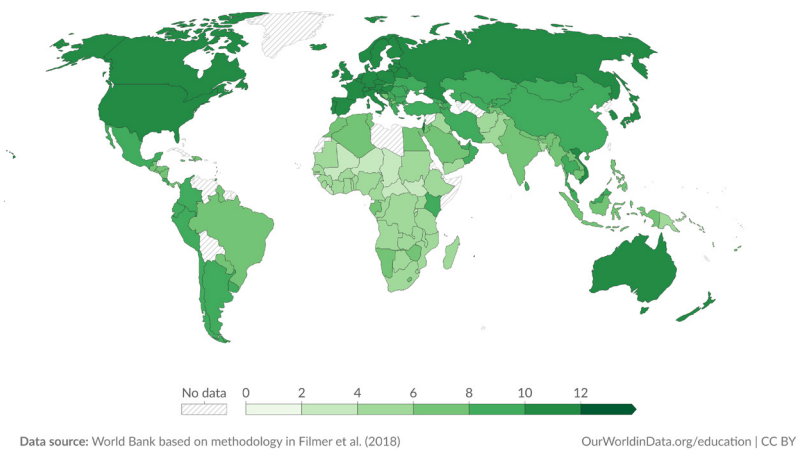


Fig. 1.3 Average learning-adjusted years of schooling among children, 2020. Ritchie et al., 2023, CC BY 4.0.

However you look at the data, there are large global variations in access to education.

Data published by UNESCO (2025) further emphasise the global inequity in higher education (Figure 1.4). Graduation rates, number of graduates from a first-degree tertiary programme as a percentage of the relevant age group, have risen between 2000 and 2023. Globally from 17% to 27%, but from Sub-Saharan Africa only from 2.6 to 4.0.

There are also large variations within countries. Figure 1.5, from the paper ‘Wealth-Based Inequalities in Higher Education Attendance: A Global Snapshot’ by Elizabeth Buckner and Yara Abdelaziz (2023), shows wealth-based variation in access to higher education. Two-year university completion rates vary from 63% in the richest 20% of the population in the high-income group of countries to 2% among the poorest 20% low-income countries.

Gross graduation ratio (%), by region, 2000 – 2023



Fig. 1.4 Gross graduation ratio from first degree programmes (ISCED 6 and 7) in tertiary education: number of graduates from first degree tertiary programmes (at ISCED level 6 and 7) expressed as a percentage of the population of the theoretical graduation age of the most common first-degree programme. UNESCO Institute for Statistics, 2025, CC BY-SA 3.0 IGO.

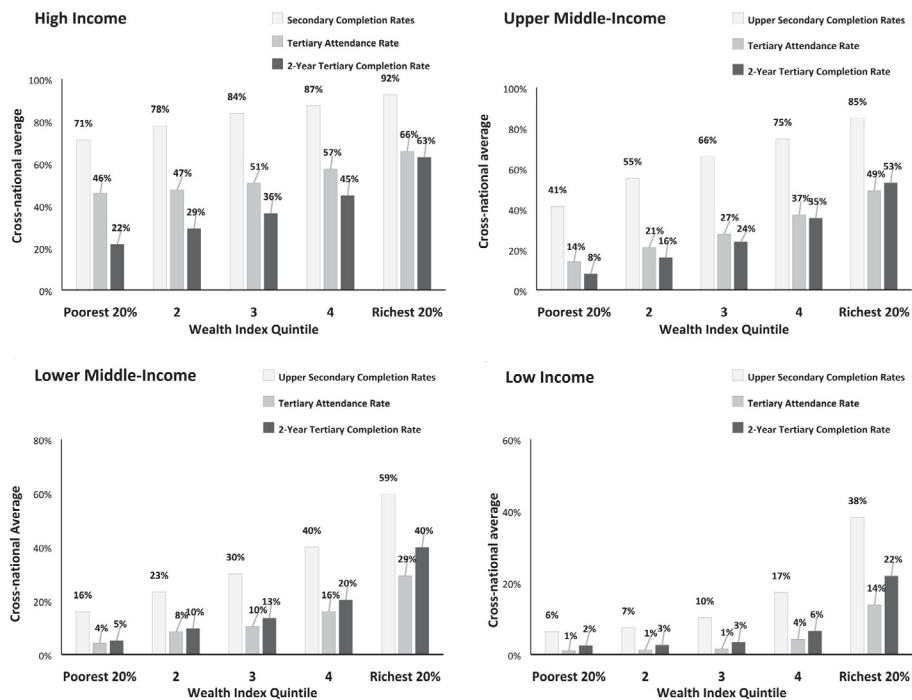


Fig. 1.5 Cross-national averages of educational outcomes by country income groups. Buckner & Abdelaziz, 2023, CC BY-NC 4.0.

The authors conclude:

Unsurprisingly, our findings point to large inequalities in higher education attendance rates both within and between countries [...] while also supporting and enriching the substantial literature on the durability of educational inequalities [...] We find that the magnitude of inequality increases at each additional level of education—secondary completion rates are more equal than tertiary attendance rates, and in most country income groups, tertiary attendance rates are more equal than 2-year tertiary completion rates. This finding is in line with the substantial literature that finds students from wealthier backgrounds are able to use their family resources to facilitate the transition to higher education and to remain enrolled in higher education (pp. 550–551).

Among the large regional variations in access to higher education within countries here are Australian data from 2021 (Ferguson, 2022). Among those aged 25–34 years from major cities, 49% have a university qualification—

which for the same age group compares with 27% from inner regional areas, 21% from outer regional areas, and 17% from remote or very remote regions (Ferguson, 2022). The following factors were suggested to explain the poor higher educational attainment in regional and remote areas 'limited local higher education study options, the financial, emotional, and social challenges associated with relocating to study, differences in student experiences and aspirations and other forms of disadvantage that correspond with location, such as being from lower socioeconomic status households, being Indigenous, and/or studying part time (p. 1)'.

The above data are likely to reflect regional differences in wealth, which the report did not mention explicitly. Average Australian household wealth (data from 2016) was reported as \$1,184,230 for capital city regions and \$764,924 for (non-mining) regional areas (Price, 2020).

There are many more examples of regional variation from other countries, and other sources of variation including gender, the presence of disability, and family background. For example, an extensive systematic review across diverse global contexts (Fitzgerald et al., 2024) identifies six intersecting factors which influence educational inequality in access to higher education—socioeconomic status, parental education, ethnicity, previous schooling, gender, and geographic location.

Parental education is a key determinant of going to university yourself. The figure below comes from OECD (2025) data.

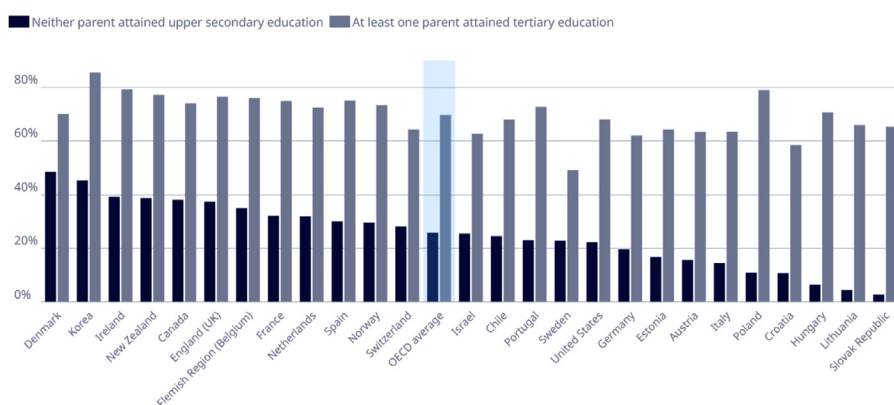


Fig. 1.6 Share of 25-34 years old with tertiary education by parental tertiary education, 2023. OECD, 2025, CC BY 4.0.

In an important review, Alan Morris (2024, p. 221) starts by identifying the reason that educational inequality is a critically important societal issue: ‘It is evident that a central institution reproducing and intensifying inequality in contemporary society is the education system’.

Morris explores ‘how education in Australia feeds into and perpetuates inequality from early childhood education to university’;

Australia’s education system is one of the most developed globally and also one of the most privatised. Despite the substantial expenditure by state governments and the federal government, it is profoundly unequal with respect to access, funding, resources, and results from early childhood education to university. The inequality has class and spatial features, and Indigenous Australians are at the bottom of the rung [...] the education system, whilst certainly allowing for some mobility, facilitates the reproduction of the existing class structure (p. 221).

There have been many calls for better access to higher education from those at social or geographical disadvantage and some concrete ideas and initiatives. Dani Payne (2025) has offered a framework for universities to drive local social mobility, which includes educational and job opportunities for local people, using research to address local needs, and involvement with local and regional civic leaders. Stephen Downes (2025) supports this and emphasises the need to connect universities with their communities and become an essential part of the community, offering engagement and empowerment. As we will see, this is highly consistent with the distributed university.

Despite all the evidence of inequity in access to higher education, it is far more difficult to demonstrate that improving access will, in turn, change the underlying factors that shape that access. A nice example comes from a simulation exercise in the US exploring the potential impact of increased rates of college attainment (Hershbein et al., 2020). The study found:

[...] increased rates of bachelor’s and associate degree attainment would meaningfully increase economic security for lower-income individuals, reduce poverty and near-poverty, and shrink gaps between the 90th and lower percentiles of the earnings distribution. However, increases in college attainment would not significantly reduce inequality at the very top of the distribution (Abstract).

An Australian study (Australian Government, n.d.a.) which controlled for a wide range of demographic factors, found ‘Higher educational attainment leads to higher total incomes, more diverse sources of income and reduced reliance on the aged pension’. In addition, the study found (Australian Government, n.d.b.):

[...] that increasing levels of educational attainment were positively associated with community engagement, advocacy and volunteering, trust and tolerance, healthy behaviours, environmental conservation activities, employment and business management. These benefits contributed to improved income and wealth accumulation, reduced financial stress and reduced reliance on government support payments (para 5).

A preprint from the Congo by Steve Mboko Ibara (2025) suggests ‘[...] a strong correlation between university education level and poverty reduction’ and makes a number of recommendations about the financing of higher education to reduce poverty in Sub-Saharan Africa. This supports a study from 38 countries by Jian Li and colleagues (2024) who ‘showed that the population segments with higher education had a significantly positive impact on GDP growth. Moreover, an increased proportion of the population with higher education, of working age, was found to be a contributing factor to GDP growth’.

Going even further, a report on a recent conference sponsored by the Council of Europe (2025) emphasised the importance of education for the maintenance of democracy. The report, headed ‘Erosion of Academic Freedom: Council of Europe Calls for Stronger Safeguards—Protecting Academics Essential to Democratic Resilience’, stated:

From political interference and restrictive laws to the loss of institutional autonomy and intimidation of scholars, the space for independent research and academic debate is shrinking. When academics are silenced, societies lose critical voices that safeguard truth, accountability, and human rights. Protecting academic freedom is therefore a shared responsibility, essential to preserving democratic resilience (para 1.)

So, there is much evidence for societal benefit from education, but is anyone listening?

Climate change

The role of the higher education sector in intellectual leadership should extend to the development of theory and practice relating to major societal issues. None are more important than tackling climate change.

While there is excellent and vital university research to quantify and find solutions to a warming climate, universities have been reluctant to make fundamental changes to reduce their own carbon footprint. Online education has a much lower carbon footprint than face-to-face teaching. A paper by Sara Becker and Daniel Otto (2019) suggests:

Digital learning [...] saves resources and CO₂ emissions, thus contributing to the protection of the climate [...] it democratizes the educational sector by making learning resources more easily accessible to learners all over the world; it helps to connect people from different cultures by allowing for intercultural exchange among students without additional travelling; fourth, it facilitates a self-regulated learner-centered style of learning that is well-suited to empower learners to become agents of a sustainable development (Conclusions, para 3).

Online learning has been shown by Sally Caird and colleagues (2015) to reduce carbon emissions by over 80% compared with the physical version, with a large component due to reductions in travel (Versteijlen et al., 2017). A Chinese study showed large reductions in carbon emissions from university students during the switch to online education during the Covid epidemic from electricity consumption and travel (Yin et al., 2022).

In 'Challenging Climate Hypocrisy in Higher Education Learning and Teaching', Adrian Gonzales (2025) identifies student field trips as an example of the need for universities to 'walk the talk' in dealing with the environmental impacts of their activities. Similarly, and likely more important in terms of carbon footprint, is the impact of international student travel and migration from low to high emission environments. My small study (Heller et al., 2021) found that 128 international students studying online rather than travelling to and living in the UK from their homes in Africa and India for a master's course were estimated to have saved nearly a million kg of carbon dioxide.

There is a need for major structural transformation of the university sector to allow it to respond to the challenge of climate change, and I have previously made the case for a distributed education model to respond to this need (Heller, 2023).

Do we value education enough and who might take responsibility for ensuring access to education?

The data on global, regional, and social inequity in access to education raise the issue of societal values. Do we value education enough to try to redress the unequal access? What is the role of the higher education sector in attempting to meet these needs? And while we are talking about societal values, should we expect our universities to take an ethical approach to whom they offer education? As we tackle these questions we should keep in mind whether the general thesis of the book—that distributing education and knowledge creation more widely—might help.

Answers to the question on whether we value education depend on who you ask! Students seem to want to be equipped for the jobs market, although a survey has found (Gupta, 2021) many students do see a broader contribution to society in addition to value to individuals from university education.

Michael Sandel and Thomas Piketty in their book *Equality—What It Means and Why It Matters* (Piketty & Sandel, 2025) discuss the issue of making education a commodity rather than a public good, and Sandel says:

If education is highly commodified, then of course there is the question of unequal access, for which we've discussed a familiar objection. But doesn't it also lead students to view the purpose of education mainly in instrumental terms—getting a good career, making more money—and doesn't that crowd out or erode, in the attitude and ultimately of universities, a concern with the intrinsic good and value of teaching and learning? (pp. 19–20)

Prior to that, in the same book Piketty (Piketty & Sandel, 2025, p. 7) had articulated a broader concern: 'I think the fact that we've sort of given up on an ambitious egalitarian objective for higher education

is at the source of many of our problems today—economic, and even more so democratic’. This concept is supported by Raewyn Connell (2019) and Simon Marginson and Lili Yang (2025) who offer their views that universities should serve the public good, although this appears to be no longer the universities’ guiding principle in a neoliberal world.

Milkessa Gemechu (2025, p. 186) tells us that although education seems to have become a political battleground it is broadly accepted that education is a ‘pillar of social progress and economic development’. This has happened in many environments, including in Africa where education has been manipulated by both colonial and post-colonial institutions and ‘education policies have been manipulated in many African states to serve the dominant interests of the ruling class’. We will return to this theme in Chapter 2 about biases in the creation of knowledge. A partisan divide in views on higher education has been described in the USA (Parker, 2019), and conservatives may be less likely to support progressive education policy as the more education you have, the more likely you are to hold liberal views (Pew Research Center, 2016).

Further discussion about the politics of higher education is beyond the scope of this book, other than to introduce the political complexity of who might take responsibility for correcting inequity in access, however we will return to some aspects of educational policy in Chapter 8 about policies and open licences. A neoliberal agenda that favours individuals over society is unlikely to want to take this responsibility. In ‘The Political Economy of Higher Education in the Era of Neoliberal Globalization: Latin America in Comparative Perspective’, Carlos Torres and Daniel Schugurensky (2002, p. 429) state:

Concerns about equity, accessibility, autonomy or the contribution of higher education to social transformation, which were prevalent during previous decades, have been overshadowed by concerns about excellence, efficiency, expenditures and rates of return. The notion that higher education is primarily a citizen’s right and a social investment—which has been taken for granted for many decades—is being seriously challenged by a neoliberal agenda that places extreme faith in the market [...] In the emerging knowledge-based society, the polarization between North and South is expected to increase even further if the scientific and technological gaps are not narrowed.

What is the ethical responsibility of universities to tackle inequity?

Although universities have paid a lot of attention to making sure that students and researchers behave in an ethical manner (think of all the attention to plagiarism and how many of us have suffered from the complexity of the research ethics approval process), there is less attention to their ethical responsibilities as institutions.

We might explore the ethical approach of universities through the framework that is often used in the field of medicine, where the four pillars are commonly accepted: Do good; Do no harm; Respect autonomy; Achieve justice.

Do good

While universities do want to do good, commercialisation has led to commodification of education through a business ethic. The business world has adopted the term corporate social responsibility (CSR), although it has been found to have 'serious limitations, which profoundly affect its ability to reduce the negative social, environmental, and economic impacts that companies generate as they pursue the financial bottom line' (Hilliard, 2019). A university corollary is university social responsibility (USR) which has been adopted by some universities (USR Network, n.d.). Muhammad Ali and colleagues (2021) find no obvious accountability by universities for their social responsibility, that there is a lack of integration with policies and procedures and state: 'Universities across the globe need to undertake social responsibility as an integral process of the organization and mould their activities of teaching education and training accordingly'.

UNESCO (2026) has released a new social contract for higher education:

Today higher education institutions have a critical role to play in responding to pressing contemporary challenges. Through research, teaching and community engagement, they can provide the critical understanding, scientific expertise and creative imagination needed to tackle complex, multi-layered issues like climate change, biodiversity loss, health crises, persistent inequalities, the devastating consequences of armed conflicts, technological disruptions, democratic backsliding,

economic challenges and rapidly transforming work environments.

To maximize the transformative potential of the sector, higher education itself needs to be transformed.

Although universities have mission statements that usually include some form of public good, it is rare to find statements about how the university will try to reduce global, regional, or social knowledge inequities, or the issues covered by the UNESCO report. The UNESCO report is designed to 'point the way a new social contract for higher education, and is a call to action to help faculty, students, leaders and stakeholders change the sector into the transformative force the world and future generations need'. I hope that this book will play its part in helping a transformation towards 'doing good'.

Do no harm

Universities are responsible for a high carbon footprint, and although this may be relatively small in comparison with other polluting industries there is considerable room for improvement, especially through a pivot to online education. This matters because, in many countries, at least half the population engages with the higher education sector, which carries a responsibility to lead thinking and model good practice. Universities have also become unpleasant places to work for many staff who suffer under increasing managerialism. Later in the book, I offer suggestions that a distributed model, with distributed leadership, will allow for reduced central oversight and increasing autonomy for staff. Which brings us to the next pillar.

Respect autonomy

A declaration by the Global Forum on Academic Freedom, Institutional Autonomy, and the Future of Democracy (2019, item 2) includes the statement that: 'Academic freedom and institutional autonomy are essential to furthering the quality of learning, teaching, and research [...]'. Paul Stacey, one of the thought leaders in open education, introduces us to the idea of openness (to which we return in detail later) in the context of autonomy (Stacey, 2025, paras 4, 9, 10):

Autonomy in education involves empowering students, teachers, and schools to have choices and make decisions. Autonomy generates greater engagement, motivation, better learning experiences and more efficient use of resources. Student autonomy, teacher autonomy, and institutional autonomy are all interrelated and are all affected by external controls [...] One of the unique propositions of open education is that it encourages autonomy for learners, educators and institutions [...] At a time of high interest in sovereignty, open education provides a means for having choice and reclaiming control over the resources, methods, and systems that shape education [...] Open education is only one of many forms of open in higher education. It is part of a broader spectrum of opens including open research, open science, open access, open data, open innovation, open hardware, open source, and open governance. Each open provides additional autonomy. Combining them together creates a synergistic effect that maximizes autonomy for the good of all involved.

As we explore a distributed model of education through open online education, we will see how this model can create opportunities for increased autonomy.

Achieve justice

The continuing presence of inequity, the central theme of this book, is an indication of a failure of the sector to pursue justice. The distributed model is an attempt to rectify this failure.

Hypothetical ethical perspectives

The last section of this chapter is taken from a submission to the Australian Universities Accord, a wide-ranging review of the higher education sector which reported in 2024. A slightly different version appeared in Heller & Leeder (2025). It imagines the hypothetical ethical perspectives of various parts of the higher education sector once universities adopt the distributed model discussed in this book.

The student

“In order to respect the principle of autonomy, I can choose the courses for my interests and future career options. I can choose the timescale

over which I take the courses. I can live and work anywhere while accessing courses.”

“For my university experience to do no harm, I appreciate the move towards a low carbon footprint.”

“For my university to pursue justice, as I live in a rural town, I can continue to access most of my courses online, and attend a regional hub for those activities which require face to face contact. This will encourage me to enrol in university in the first place, and I am more likely to remain in a rural environment after graduation.”

The academic

“In order to respect the principle of autonomy, I am pleased to be trusted to have control over my professional activities including course development and delivery and to have a collegiate relationship with university administration. Intrusive managerialism has gone. I can expect the same respect and academic rewards for my teaching as for my research.”

“For my university to do good, and to pursue justice, I appreciate the opportunity to practice in a distributed university environment. Its multimodal operation, which requires some in-person training or assessment, with the remainder being exclusively online is satisfying for me as teacher as well as for my students.”

“I enjoy using high quality open access educational materials in my teaching, making the material I produce available online to other academics in other places. This fits with the evidence that online is not inferior to face-to-face learning. Distributing knowledge as well as its production has allowed me to include a diverse set of experiences into my research and thence into my teaching, and has led me into valuable research collaborations.”

The Vice Chancellor (and other senior administrators)

“For my university to do no harm, I have refashioned the composition of the University Council to increase the representation of people with a social mission. I am seeking to reduce unhealthy competition

in both education and research as we push towards the social mission of the university. I have reduced the size of the administration, and we are replacing managerial oversight with collegiate relations with academics.”

“The distributed model will reduce the need for centralised campus buildings, so I will work with local and national government to convert several current buildings to social housing and other community functions. There will be no new buildings, other than those that might be required to house innovative infrastructure to support distributed research.”

“We are appreciating the opportunity to work with industry and community partners to develop a set of social responsibility parameters and appropriate accountability. I look forward to my university being ranked according to the extent to which we honour our social responsibility. I am commissioning a rigorous examination of the carbon footprint of all aspects of the institution, and will act to reduce it.”

“One of my major ethical concerns relates to the injustice of reliance on international student fees. Without this fee income, the support given by the government will be insufficient to support much of our research and teaching. I will band together with my colleagues across the sector to lobby the government for adequate research funding.”

The Vice Chancellor of a university in a developing economy

“Respecting the requirement of Australian universities to do good, and to pursue justice, I look forward to joining and collaborating with an online global network of Australian universities. This will allow us access to the high quality of Australian universities rather than losing our brightest young people to them. We can double badge awards, keep students in Africa and build capacity in my own staff as well as collaborating on research.

“I am sure that my Government will look favourably on the Australian Government as it acknowledges the importance of helping to reduce global inequalities in access to higher education, rather than just using international students to generate income.”

As we work through the book, covering the various features of the framework for distributing knowledge for equity in turn, we will circle back to each of these ethical perspectives.

Steps towards distributing knowledge for equity

- The role of the higher education sector in thought leadership should extend to the development of theory and practice relating to major societal issues.
- Adoption of a distributed education model with its lower carbon footprint can allow the sector to respond to the challenge of climate change, society's most pressing challenge.
- There is extensive inequity between and within countries in access to education, a critically important societal issue, requiring concrete ideas and initiatives.
- Universities, hampered in their approach to equity by the commodification of education resulting from the commercialisation of the sector, should however adopt an ethical response to tackle inequity.
- Moving to a distributed model will allow the university of the future to conform to the ethical principles of 'Do good; Do no harm: Respect autonomy; Achieve justice'.

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PART B. REDUCING INEQUITY IN CREATING AND PUBLISHING KNOWLEDGE

Introduction

It is difficult to decide in which direction to move next around the framework for distributing knowledge for equity—as we have seen, it is drawn as a circle. I have decided to start with the creation and publication of knowledge. Unless knowledge is created and made available, it cannot be transmitted in an educational context. Chapter 2, on distributed knowledge creation, observes that knowledge is produced by a restricted part of the global population. Scientific publications are biased towards representation of white middle aged males from the Global North. Many groups and populations are under-represented in the literature. In order to correct this, research should include under-represented populations and a distributed system of knowledge creation is required both to reach appropriate populations and to site the researchers there. A similar situation occurs in the source of educational materials, which of course often are derived from the publication of research findings. The chapter identifies a few ideas for how to distribute knowledge creation, including distributive structural changes, co-creation of knowledge, innovative publication options, the decolonisation of education and capacity building. The solutions will also flow more easily as we go to other sections of the book.

Chapter 3, on open publishing, reviewing and curating, takes the next logical step of ensuring that knowledge once created can be published in a way that is accessible to those who might use or quote it.

The restrictive practices of the major research publishing businesses are identified and the alternatives of open access publishing and innovative methods of research publication are discussed. Diamond Open Access refers to publications which are free to the reader as well as the author, and are locally owned. Again this touches on many of the other themes in the book, based on distributive and decentralised approaches and greater autonomy.

2. Distributed knowledge creation

This chapter discusses the way in which knowledge is created—a first step before it can be disseminated through an educational process. It starts with a focus on societal needs relating to the production of knowledge and identifies three major issues that demonstrate the importance of distributing knowledge creation to increase equity: research to involve and reflect the experience of diverse populations, publication of this research to reach and be adopted by diverse populations, and the creation of educational resources that reflect this diversity. The chapter then identifies a number of ways in which we can put the distribution of knowledge creation into practice, including structural change, co-creation of knowledge, open publishing, and appropriate capacity building.

There is a philosophical background to knowledge inequity in the literature, defined in a book by philosopher Miranda Fricker (2007) and nicely articulated by health researcher Soumayadeep Bhaumik (2024). The term ‘epistemic injustice’ (epistemology is the theory of knowledge), coined by Fricker, is highly relevant to our thesis here of knowledge equity. It has been identified as a serious problem for sustainable development (Cummings et al., 2020) and that a number of common practices in academic global health contribute to epistemic injustice due to structural exclusion of marginalised producers and recipients of knowledge (Bhakuni & Abimbola, 2021).

Much of what follows in this chapter was first published as an article in the *International Review of Research in Open and Distributed Learning* (Heller & Leeder, 2025), and takes us through a demonstration of inequity in knowledge creation as well as making suggestions for how a distributive model can help correct this inequity.

Three issues demonstrate the need for distributing knowledge creation.

1. Research under-represents diverse populations

Research on many topics can be enriched by the perspectives that come with the distribution of talent and representation of voices. Current research studies frequently exclude women, certain geographical areas (especially those in the Global South), and marginalised groups. For example, the lack of female and racial representation in the conducting of clinical trials in medicine diminishes the application of the research findings (Tysinger & Hlávka, 2022). Research in psychology and human behaviour has been criticised for focusing on Western, educated, industrialised, rich, and democratic (WEIRD) societies (Henrich et al., 2010). Oxford historian Peter Frankopan, in his wide-ranging *The Earth Transformed: An Untold History* (2023), wrote:

Study of the past has been dominated by the attention paid to the “global north” [...] with the history of other regions often relegated to secondary significance or ignored entirely. That same pattern applies to climate science and research into climate history, where there are vast regions, periods and peoples that receive little attention, investment, and investigation [...] Much of history has been written by people living in cities, for people living in cities, and has focused on the lives of those who lived in cities. (pp. 77-78)

Hungarian social researcher Márton Demeter wrote:

the accumulation of academic capital is radically uneven with very high concentrations in a few core countries. [...] the world of science can be separated for a few “winner” or core and many more “loser” or peripheral countries [...] loser-country scientists were cited less frequently than winner-country scientists, even in cases where they had been published in the very same journal (Demeter, 2019, p. 121).

The philosophical concept of standpoint epistemology (or standpoint theory of knowledge) is relevant and nicely summarised by Georgetown University philosopher Olúfemi O. Táíwò (2021) as: (a) knowledge is socially situated; (b) marginalised people have some positional advantages in gaining some forms of knowledge; and, (c) research programs ought to reflect these facts. Brenda Allen (2017) stated:

Feminist standpoint theory has expanded beyond gender to encompass categories such as race and social class. Recent scholarship calls for studying standpoints of Third World groups in Western societies and marginalized groups in international contexts (Abstract section, para 1).

Under-representation of Indigenous peoples in research is now widely recognised. An example comes from Arctic peoples:

Indigenous Peoples' knowledge systems hold methodologies and assessment processes that provide pathways for knowing and understanding the Arctic, which address all aspects of life, including the spiritual, cultural, and ecological, all in interlinked and supporting ways. For too long, Indigenous Peoples of the Arctic and their knowledges have not been equitably included in many research activities. (Yua et al., 2022, Abstract section, para 1)

The authors proposed a framework for co-production of knowledge—a matter to which I return later in this chapter. During the seminar 'Decolonizing Knowledge Production. Perspectives From the Global South' (Maria Sibylla Merian Center for Advanced Latin American Studies in the Humanities and Social Sciences, 2020), representatives of the five Maria Sibylla Merian Centers (India, Mexico, Brazil, Ghana, and Tunisia) discussed the distribution of knowledge production.

The production of knowledge in the global academic field is still highly unevenly distributed. Western knowledge, which originated in Western Europe and was deepened in the transatlantic exchange with North America, is still considered an often unquestioned reference in many academic disciplines. Thus, this specific, regional form of knowledge production has become universalized (para 1).

In a supplementary issue of the *Journal of the British Academy*, titled 'Repositioning of Africa in Knowledge Production: Shaking off Historical Stigmas', Crawford et al. (2021) summarised:

Contemporary debates on decolonising knowledge production, inclusive of research on Africa, are crucial and challenge researchers to reflect on the legacies of colonial power relations that continue to permeate the production of knowledge about the continent, its peoples, and societies. (Abstract section, para 1)

An article in the prestigious medical journal, *The Lancet*, following this theme said:

Institutions for knowledge production and dissemination, including academic journals, were central to supporting colonialism and its contemporary legacies [...] Around the turn of the 20th century, The Lancet helped legitimise the field of tropical medicine, which was designed to facilitate exploitation of colonised places and people by

colonisers [...] The Lancet must recognise and engage more with different methodologies of knowledge production, beyond the ways of knowing and the types of knowledge that it currently publishes [...] The Lancet must divest from the power of its centrality that makes it perpetuate various forms of colonialism (Khan et al., 2024, pp. 1304–1307).

Abimbola and colleagues (2024), from the universities of Sydney and Utrecht, identified unfair knowledge practices, enacted by those in the centre on behalf of those in the periphery, which have affected the ability to achieve global health equity between and within countries.

Case study: 'Research Report: Localisation of Humanitarian Research'
(Network for Empowered Aid Response NEAR, n.d.).

Humanitarian research has long been dominated by institutions from the Global North, while institutions and researchers from the Global South have been largely excluded or relegated to minor roles. Global North donors control the funding and tend to fund Global North humanitarian research institutions, which enables them to control research agendas, research standards, peer-reviewed publications, and the structure of partnerships with their counterparts in the Global South. Global North organisations continue to shape knowledge generation and dissemination in the humanitarian sector (para 1).

The study identifies a self-reinforcing triad of power, funding, and language as the main underlying barrier affecting the equitable participation of Global South institutions and researchers in humanitarian research. The accumulated wealth of Global North institutions gives them the resources to out-compete their Global South counterparts for grants, making it difficult for them to access direct funding, build their credibility, and set their research agendas (para 4).

Localisation has become a buzzword in international development, meaning 'the transfer of funding and decision-making powers to local actors' (Tomlinson & Zakaria, n.d., para 1). My word for this is distribution! We come across localisation in the capacity building section below.

2. Research publications are biased towards the Global North

This bias is due both to lack of research capacity and biases in the publication system. Even when research is undertaken with or on these populations, it may not be accessible to those who might apply the results. The relative lack of scientific publications by authors in the Global South has been widely discussed. Political scientists Medie and Kang (2018) reported that fewer than 3% of articles in four gender and politics journals published in the Global North were written by authors from the Global South. Boyes (2018) had an interesting overview of this issue from a knowledge management perspective, while a geographical perspective on sub-Saharan Africa found that digital content was more evenly geographically distributed than academic articles (Ojanperä et al., 2017).

Patterns describing the North-South divide may be an under-estimate of true geographical disparity, as the citation of published papers may be biased. The Web of Science, the source of the data on citation rates has been criticised for being ‘structurally biased against research produced in non-Western countries, non-English language research, and research from the arts, humanities, and social sciences’ (Tennant, 2020, Abstract, para 1). Research on health journals published in 13 African countries found that most journals were not indexed (Agyei et al., 2023). Other valuable research may not appear in journals biased against non-Global North sources. Article processing charges levied on the authors or their institutions are further barriers to publication.

A group of computer scientists called the *Citational Justice Collective* called out citational injustice especially as it applied to the Global South and call for citational justice (Ogan et al., 2023):

In terms of scholarly knowledge production, researchers from the Global North dominate the agenda-setting processes for conferences, journals, and academic curricula. Even when the Global Souths are the focus, Global North scholars define goals, research directions, and methodologies with little or no input from Global Souths researchers. The outcome results in the Global North, comprising just 15% of the world population, directing the knowledge enterprise for the remaining 85% (pp. 15–16).

Citational justice is at the nexus of political theories of justice and epistemology. Do we have a society in which everyone can contribute to our shared knowledge and be recognized for their contribution (p. 16)?

Diana Kwon (2022) also describes the rise of a movement towards citational justice, and refers, as well as to geographical biases, to biases in the citation of scientific articles against women and people of colour.

3. Educational resources are biased in the same way

If population groups and geographical regions are relatively under-represented in the research literature, educational examples from these populations are unlikely to find their way into the curriculum. This may be compounded by similar under-representation among the academic staff of educational institutions. Taleen Postian (2023), an Armenian American writer, reviewed the literature and confirmed demographic disparity of authors. She reviewed the courses at Villanova University and found that of the authors represented in undergraduate introductory courses, 70% were men, 90% worked in or originated from the Global North, and 7% were Black academic authors.

Ghai and colleagues (2023), who represent an ethnically diverse group of students and faculty in the Department of Psychology in the University of Cambridge, UK, audited recommended reading materials in the undergraduate curriculum for the psychological and behavioural sciences bachelor's degree in their institution. They wrote:

All first authors of primary research papers were affiliated with a university in a high-income country—60% were from the United States, with 20% from the United Kingdom, 17% from Europe, and 3% from Oceania. No author was affiliated with an institution based in Africa, Asia, or Latin America [...] most of the research studies taught to undergraduates were also based on groups that were predominantly (67%) from the global north. Only 12% of articles included research participants from both the global north and the global south; no study in our reading lists focused on a group solely from the global south. Our syllabus lacked diversity even within the studies: less than 20% of articles reported diversity markers such as income or race, and only 3% mentioned participants' urban or rural location (Western bias section, paras 1-2).

Others have reported similar findings. Tamimi et al. (2023) from the Department of Global Health and Social Medicine at King's College London identified a curriculum biased towards white, male scholars and research from the Global North and set this in the context of an exploration of decolonising their curriculum.

K. Schucan Bird and Lesley Pitman (2019) examined reading lists in an undergraduate science module on genetics methodology and a postgraduate social science module on research methods at University College London. The lists were dominated by white, male, and Eurocentric authors, although on the social science reading list, equal proportions of the authors were male and female, and almost a third of authors on the science list identified as Asian. They discussed implications for the growing interest in decolonising curricula across disciplines and institutions. Interest in this area comes from a wide range of disciplines, including the biomedical sciences (Burton & McKinnon, 2013).

Within Africa, attention is being paid to decolonising education. Ifejola Adebisi (2021), a law academic at Bristol University, has provided a thoughtful review:

Essentially, people in Africa have inadequate knowledge of Africa because the inherited colonial systems were not designed to enable them to acquire such knowledge. And people who are outside Africa, who determine what amounts to good knowledge, know even less. Decolonial thought requires us to build global structures that allow all knowledges to equally complete our understanding of the world (Main Conclusions from the Article, para 3).

This is echoed in the paper 'Gender, Knowledge Production, and Transformative Policy in Africa', where N'Dri Thérèse Assié-Lumumba (2020), a professor and director of the Institute for African Development at Cornell University, argues that:

Contemporary formal African education has been deficient since its inception as it was designed to negate, suppress, and eliminate African culture, promoting inadvertent and deliberate "epistemicide" [...] In its philosophy, this received system was also gendered and unequal, with limited access and a less valued curriculum designed for the female population (Abstract, para 1).

Zimbabweans Juliet Thondhlana and Evelyn Garwe (2021), in their introduction to the aforementioned supplementary issue of the *Journal*

of the British Academy, concluded that the high quality of the articles ‘showcases our conviction that Africa can indeed shake off historical stigmas and reposition itself as a giant in knowledge production’ (Abstract section, para 1).

How can we put distributing knowledge creation into practice?

This section moves on to some solutions, and is also largely drawn from the paper ‘Distributing Knowledge Creation to Include Underrepresented Populations’ (Heller & Leeder, 2025).

Structural change

The structure required to distribute education is discussed in Chapter 5. The university will have to transform its structure to meet the requirements of the truly distributed university where education is largely online and is provided ‘where it is needed, reducing local and global inequalities in access, and emphasising local relevance’ (Heller, 2022a). This structure will also facilitate, and in fact be a requirement for, distributing the creation of knowledge in addition to disseminating the knowledge once it is created. Following the notion of a focus on online education with infrastructure being distributed away from central inner-city campuses towards regional hubs, a similar structure would encourage knowledge creation among the populations to which the education is distributed. The distributed model would encourage co-creation of knowledge—through collaboration with local communities, industries, minority groups and geographic regions (local, regional, and international).

Co-creation of knowledge

Knowledge co-creation has been defined by the Organisation for Economic Co-Operation and Development (OECD) (2021) as ‘the process of the joint production of innovation between industry, research and possibly other stakeholders, notably civil society’. OECD identifies four factors that are essential for successful co-creation: engagement with stakeholders; effective governance and operational management

structures; agreement on ownership and intellectual property, and adjustment for changing environments. Co-creation is a great example of collaboration, to which I return in detail in Chapter 11.

Although there are a number of barriers to university-industry collaborations in the co-creation of knowledge (Palumbo et al., 2021), the benefits can be considerable—for industry, through the application of knowledge once it is generated, and to academia, through research directions and funding opportunities (de Wit-de Vries et al., 2019). As well as bridging the research-practice gap, university-industry cooperation may contribute to regional development (Lopes & Lussuamo, 2021). In my blog-post ‘Universities Can Spearhead Regional Development and the Distributed University Model’ (Heller, 2022b,) I suggested that the local hubs which are part of the structure for distributing knowledge could facilitate partnerships with industry and offer leadership in regional development.

Most of the literature on co-creation focuses on industry. While co-creation of knowledge with industry is the main area of potential benefit, there are two areas I would like to explore: students and lay society.

There is a substantial literature about students learning together and co-creating knowledge and the *International Journal for Students as Partners* (n.d.) is devoted to the topic:

The focus of IJSaP is students as partners in learning and teaching in higher education. This may involve students working with a wide variety of potential partners (referred to as staff) including academic staff/faculty, professional staff, other students, and other stakeholders (including librarians, alumni, industry, and the community).

The practice of engaging with students as partners is ultimately about sharing power and responsibility through relational and dialogic processes. Partnership approaches include students and staff as active collaborators in initiatives where those involved have co-responsibility for the development, practice, analysis, affirmation, and revision of practices related to learning and teaching.

There are many ways students and staff work together in partnership, including: mentoring, teaching, assessing, and peer learning; researching within the discipline; investigating learning and teaching experiences; designing of courses and programs (co-creation of curriculum); pedagogic consultations; representation and governance around teaching and learning (International Journal for Students as Partners, paras 1-4).

Lay involvement in co-production of knowledge is growing, and has been characterised as a socially distributed mode of knowledge production where the role they play depends on a number of factors including autonomy and relation with expert scientists (Palumbo et al., 2021). Citizen science projects have been described from astronomy to ornithology, but development, deployment and management of the projects require appropriate conceptual frameworks (Yadav & Darlington, 2016). Such projects also require an appropriate balance between scientific rigour and societal aims (Golumbic, 2024).

Publication

Even if knowledge creation is distributed among populations and groups currently under-represented, this does not lead automatically to greater publication of that knowledge. A desirable goal would be that publication of the knowledge produced should be accessible both to the scientific community and the potential users of it. In Chapter 3, I discuss the potential for open publishing of research and in Chapter 6, as a corollary to research, the importance of open access to educational materials through Open Educational Resources (OER).

Incorporation into educational programmes

As for publication of research, structures and incentives will be needed that encourage the incorporation of knowledge generation into educational programmes. Distributing knowledge creation is a necessary step in the process of curriculum decolonisation (Shahjahan et al., 2021), an area that is becoming increasingly discussed among universities in the Global North.

Consideration also needs to be given to how to increase the diversity of academic staff to include those who come from, and reflect the issues of, currently neglected populations. Going beyond the traditional academic community in educational programme development has been shown to be possible, and Community Open Online Courses (Shukie, 2019) are an example of the benefits of widening the range of those involved in producing educational programmes.

Building capacity

To distribute knowledge creation in practice, it will be important to build the appropriate capacity for each of the three themes running through the chapter: research to involve diverse populations, publication of this research to reach diverse populations, and the creation of educational resources that reflect diversity.

Maru Mormina and Romina Istratii, in their blog-post ‘Decolonising Research Capacity Development’ (2023), a summary of a longer paper, suggest that research capacity development should be based on knowledge justice, systems thinking, and localisation. The paper goes on to say that:

Ensuring fair access to the benefits of knowledge production requires a strong social contract between these key actors: The institutions tasked with creating knowledge (eg., universities and think tanks), The institutions tasked with translating knowledge (eg., industry and government), The governance institutions tasked with enabling the process, through appropriate regulatory frameworks and infrastructure.

True localisation means shifting power so that ideas are developed in local communities, to address their own needs. This requires systems and processes of knowledge production that are not vulnerable to external interests. Because these interests are usually leveraged through foreign investment, localisation can only be achieved by breaking the reliance on international research funding. Clearly, local financing is a political decision that each country must make independently—do they encourage home-grown knowledge production or continue relying on international organisations? Enhancing the demand for local knowledge requires cultural and societal change to overcome the deficit mindset.

Localisation of capacity building within developing populations is critical, as Mary Ann Lansang and Rudolfo Dennis (2004) clearly articulated from a health perspective:

For developing countries to indigenize health research systems, it is essential to build research capacity [...] As a key element of capacity building, countries must also address issues related to the enabling environment, in particular: leadership, career structure, critical mass, infrastructure, information access and interfaces between research producers and users. The success of efforts to build capacity in

developing countries will ultimately depend on political will and credibility, adequate financing, and a responsive capacity-building plan that is based on a thorough situational analysis of the resources needed for health research and the inequities and gaps in health care (Abstract).

Case study: 'Multi-stakeholder Pledge: Shifting Power—Advancing Localization of Research and Elevating the Voices of Host and Forcibly Displaced Communities Globally' (Global Compact on Refugees, n.d., Key outcomes, paras 1-4)

The core objective of this coalition is to contribute to more effective and rights-based responses to forced displacement by investing in and amplifying locally produced knowledge and quality partnerships with academia in support of the implementation of the GCR.

Research led by those with local knowledge and/or lived experience of forced displacement produces evidence that reflects local realities, is considered more legitimate by local stakeholders and leads to more effective and reliable interventions in protection, assistance and solutions.

This pledge serves as a starting point to longer-term engagement and vision for the localization of knowledge, tertiary education and community outreach efforts in the context of displacement. No one should be left behind in the development, design, deployment and dissemination of research projects, development programs, education opportunities and policy proposals.

The ultimate goal is to redistribute power and opportunities towards communities with lived experience and scholars based in low and middle-income countries most affected by displacement. We recognize that their knowledge, insights and expertise will advance scholarship and policy change in the fields of forced displacement, statelessness, human rights, and beyond.

We will return to capacity building more generally, in Chapter 11.

Having articulated the need for capacity building to be localised/distributed among under-represented population, the research has to be published in a way that it is available in those populations.

Development of publishing options for researchers in under-represented populations and groups

I will return to the theme of open access publication in Chapter 3, but give a couple of examples here as they relate to my list of possible ways of distributing knowledge creation.

The concept of Diamond Open Access is described as ‘a scholarly communication model whereby research outputs are openly available without charging fees to either authors or readers. Importantly, it is a model that is driven by scholarly communities, meaning that they are in the lead and have ownership of the content-related elements of scholarly communication’ (Plan S, 2024). Hence it is a particularly valuable way for researchers in low-income settings to both have their own research published and to access the research of others that will be relevant to them and to their own populations. The discussion paper (Plan S, 2024) proposes a federated global community of Diamond Open Access and offers a persuasive and comprehensive plan for realising this. It would go a long way towards offering publication options for knowledge produced in currently under-represented populations—I recommend a close read of the discussion paper.

An example with which I am familiar is the Coalition for open access publishing of public health in Africa, supported by the West and Central African Research and Education Network (WACREN, n.d.). The aim is to build both capacity for peer reviewing among African Public Health researchers through online courses and the development of new open publishing options through repositories for preprints and open reviews.

The visibility of, and access to, published research which has been created locally in distributed populations should increase its ability to find its way into educational resources. In addition, the inclusion of this work in Open Educational Resources (OER) will increase its availability—I discuss OER in detail in Chapter 6 as a key component for distributing education widely. We can consider local development of educational resources in the context of the Sustainable Development Goals (SDGs), where Goal number 4 *Quality Education* aims (Global Goals, n.d., Title) to ‘Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’. This is well identified as a priority in a UNESCO (2019) set of recommendations on the use of OER:

One key prerequisite to achieve SDG 4 is sustained investment and educational actions by governments and other key education stakeholders, as appropriate, in the creation, curation, regular updating, ensuring of inclusive and equitable access to, and effective use of high quality educational and research materials and programmes of study (Aims and Objectives, 5).

In addition, the judicious application of OER [...] can provide a broader range of innovative pedagogical options to engage both

educators and learners to become more active participants in educational processes and creators of content as members of diverse and inclusive knowledge societies (Aims and Objectives, 7).

Al-Shorbaji et al. (2024) make the case for the importance of knowledge, and equity, in realising the Sustainable Development Goals (SDGs), and state (p. 1):

To be able to successfully address complex problems such as climate change and social inequality, the development community needs to listen to all voices, and the widest range of actors. Equity is a basis for understanding local knowledge, tradition and cultural differences. We need to access local knowledge and ensure that all views and needs are shared to achieve holistic and comprehensive responses that address the roots and target the real needs.

Case study

OER Africa is an organisation devoted to helping African education systems with the local development of educational resources (OER Africa, n.d.) with a mission 'To establish dynamic networks of African OER practitioners by sensitising and connecting like-minded educators—teachers, academics, academic librarians, trainers, and policy makers—to develop, share, and adapt OER to meet the education needs of African societies (mission, para 1)'.

Finally

This chapter started with the notion of epistemic injustice as articulated by Bhaumik (2025) in the context of neglected tropical diseases where the majority of research funding goes to countries where the diseases do not even exist. He offers some suggested pathways which include diversifying leadership, enhancing co-design and co-production of research, and implementing anti-oppressive teaching. I return to distributing leadership later. Change will require a better understanding of how knowledge is prioritised, produced, validated, and disseminated, and create 'a movement where diverse knowledge systems co-exist and interact to create new knowledge (Bhaumik, 2024, p. 4)'. To join such a movement is my challenge to readers and we will return to this in Chapter 12.

Steps towards distributing knowledge for equity

- The need for a distributed model for knowledge creation is demonstrated by three observations: research under-represents diverse populations, research publications are biased towards the Global North, and hence educational resources are biased in the same way.
- Ways to correct the biases and distribute knowledge creation more equitably include: foster structural change that distributes education and which will therefore also facilitate distributed knowledge creation; enable the co-creation of knowledge; and make available options for open publication of research and educational resources, as well as capacity building.

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3. Open publishing, reviewing, and curating

Having created knowledge through research, it needs to be made openly available to those who would benefit from using the knowledge, as a key aspect of knowledge equity. The chapter discusses the value of open publishing and the notion of the Publish-Review-Curate model, where reviews, also open, occur after publication. Diamond Open Access is identified as a major transformation in journal and textbook publication.

This chapter examines how open publishing contributes to knowledge equity by ensuring that research outputs are freely accessible and reusable. While open education is discussed elsewhere, the focus here is on the models and practices that make research openly available. UNESCO's Recommendation on Open Science highlights the importance of accessibility and inclusivity in knowledge production:

Open science is a set of principles and practices that aim to make scientific research from all fields accessible to everyone for the benefits of scientists and society as a whole. Open science is about making sure not only that scientific knowledge is accessible but also that the production of that knowledge itself is inclusive, equitable and sustainable (para 1).

This links nicely to another definition—that of open access, which is clearly described by Open Education Global (n.d.):

Open Access (OA) refers to research published in a way that is digital, online, free of charge, and free of most copyright and licensing restrictions. OA removes price barriers such as subscriptions and pay-per-view fees giving researchers, students, and public access to research. As most research is publicly funded OA ensures the public has access to what is funded. OA makes research discoverable, available and reproducible for

the advancement of science. When used for teaching and learning Open Access articles are a form of OER [Open Educational Resources] (Open Access (OA)).

So that is the aim, but practice is not simple. As we will see, there are many barriers to the openness of publishing, but luckily there are many developments and innovations in the drive to openness.

Inequity in availability of published research

The availability of published research is impeded by the restrictive practices of journal publishers. There are high fees either for institutions to subscribe to journals to make them available through their libraries, or if authors wish to make their findings freely available through an open access option, this requires them to pay high article processing charges. An article from the Gates Foundation (Torok, 2024), ‘Who Loses when Scientific Research is Locked behind Paywalls?’ states (paras 4-5):

Journal subscriptions can cost hundreds to thousands of dollars a year for individual access and multiple millions of dollars for institutional access. Fees for publishing outside a paywall, known as article processing charges (APCs), can be as much as US\$12,000 for a single article. Even the most privileged institutions struggle to afford both access to and publication in the large number of journals globally.

It’s even more frustrating because governments and foundations fund much of the world’s health-related research and journal articles are peer-reviewed by scientists for free, yet many journals continue to limit access to research findings through restrictive policies. It is small wonder that academic publishing is one of the most profitable industries in the world!

This is compounded by the low quality and failure of many local journals to be indexed—which means that the research they publish cannot easily be found by those who would benefit from it. Universities also may have institutional policies which require academics to publish in international rather than local journals.

As mentioned in the previous chapter on distributing knowledge creation, there is also a North/South divide in both the publication of research and in the citation of the research once it is published. The way that published research is indexed (and hence found through search

engines) adds to the problem. Salvo Heleta and Pedro Mzileni (2024) define bibliometric coloniality as:

[...] the system of domination of global academic publishing by bibliometric indexes based in the Global North, which serve as gatekeepers of academic relevance, credibility, and quality. These indexes are dominated by journals from Europe and North America. Due to bibliometric coloniality, scholarly platforms and academic research from the African continent and much of the Global South are largely invisible on the global stage (Abstract).

Research funders are demanding that the results of the work they fund should be published as open access to make the findings readily available, and there is a growing global movement to encourage and facilitate open publishing (Coalition S, n.d.a). The article from the Gates Foundation quoted above describes their policy from 2015 in requiring open access publication of the research they fund—and the fact that they paid 6 million dollars each year in article processing charges to journals as a result. They have now changed policy and while they still require open access publication, they no longer pay these charges and require grantees to publish their results as open access preprints. I discuss preprints below.

Two recent studies explored African open access journals in the health field and barriers to open access publishing. In the first (Agyei et al., 2023), 173 journals from 13 African countries were explored, with numbers of journals in each country varying from 1 to 85. Although two thirds of the journals were open access and available for free download, only one in five were indexed on PubMed and fewer than one in ten on MEDLINE. One half charged article processing charges and only a third of these offered a full or partial waiver.

A second study (Ruredzo et al., 2024) surveyed 91 African public health practitioners about open access publishing. Fewer than half of the respondents had experience of open access publication, or appreciated the benefits of ready availability, added visibility, increased citations, and transparency of the open publishing model.

So what is open publishing?

Open publishing has been evolving over a number of years, but received a boost during the Covid pandemic where scientific publications relating to all aspects of the pandemic were able to be published quickly and openly so that their findings could be used by others.

The traditional scientific publishing model is that the journal receives a submission from an author and is only published if it first passes review—first an editorial desk review to assess whether the paper is appropriate for the journal—and then peer review with editors deciding to finally accept or reject the paper for publication based on review by experts in the field. The publication decision by the journal is subject to the perceived quality of the article and the fit for that particular journal. Acceptance, and from there, publication of the article, will lead to the published paper being given a persistent identifier (a Digital Object Identifier, DOI, or a decentralised Archival Resource Key, ARK); this will enable indexing by various bibliographic databases, and improve discoverability by search engines, provided that the journal has been approved by those databases. The usual shorthand for this model is Review-Publish.

This whole process is usually behind closed doors, including the policy of reviewer names not being revealed to the authors—blind review. Whether blind review does or does not improve the quality of the review is a matter of debate, with some studies supporting each side of the argument. Increasing transparency means opening up the whole process to scrutiny, including reviewer reports, reviewer identities, and all versions of the manuscript. In parallel, open access and related practices such as preprint publishing enable research to be shared more rapidly, reducing the delays associated with traditional editorial processes as well as increasing access to and visibility of the research findings.

Open reviewing

One of the criticisms of the peer review system has been a lack of transparency. Reviewers are usually anonymous—this is to allow the reviewer to feel able to give a negative review without the author knowing their name. Conversely, some journals prefer to blind the reviewer to the names of the authors—hence the review is blind to author and reviewer

or double blind. However the evidence about the value of this is mixed. A helpful article by Natalie Shoham and Alexandra Pitman (2021) concludes:

Although double-blind peer review has advantages in the reduction of specific biases, open peer review has the advantage of transparency. Self-awareness among reviewers of their own unconscious biases and any deficits in the methodological expertise required for a review will help improve the quality of peer review across the spectrum, enhancing the quality of published biomedical research (pp. 252–253).

Two studies have compared blinding the names of authors with non-blinding as well as allowing reviewers to remain anonymous. The first, by Robert McNutt and colleagues (1990), reported:

Blinding was successful for 73% of reviewers. Quality of reviews was higher for the blinded manuscripts (3.5 vs 3.1 on a 5-point scale). Forty-three percent of reviewers signed their reviews, and blinding did not affect the proportion who signed. There was no association between signing and quality (Abstract).

A subsequent study by Susan van Rooyen et al. (1998), came to a different conclusion:

Blinding and unmasking made no editorially significant difference to review quality, reviewers' recommendations, or time taken to review. Other considerations should guide decisions as to the form of peer review adopted by a journal, and improvements in the quality of peer review should be sought via other means (Abstract).

These studies were both before the advent of preprints and their open reviews, and there do not seem to have been any recent trials.

Publishing research as preprints (which by definition are open access) and using open peer review models, discussed below, typically means that author identities are visible, as manuscripts are publicly available from the outset. These approaches offer advantages such as transparency, speed, and wider access to research, which some argue outweigh the potential benefits of blinded review.

Open reviewing has been adopted by a number of journals. F1000Research was one of the early journals to do so, and their process includes full transparency with all identities (author, editor, reviewer) visible, and reviews as well as each version of the submitted paper

(including revisions) published (F1000Research, n.d.). Authors are responsible for nominating reviewers according to set criteria, and nominations are checked by the editors. I have published in F1000 Research a few times—the last of these (Heller et al., 2022) required me to submit 71 names of potential reviewers, of whom 23 were rejected by the journal—mostly due to having too few publications. There was no response from 27, and 18 were unavailable. All to get 3 people who submitted a review. From this anecdote it seems as though reviewers may find it difficult to be open about their reviews—although many journals find it difficult to find reviewers, open or not!

Nevertheless, the advantages of open reviewing are considerable. As with the more traditional review process, the author has the opportunity to respond to the comments by the reviewer and amend the submission, for the reviewer to take another look and maybe change their recommendation, but now all this is open. A reader can see each of the various submissions over the whole review process. In addition to this transparency, the open process allows recognition for reviewers' intellectual labour and the ability for readers to see how the paper evolved. Also, while all this is going on, the article is available to the public, in the form of a 'preprint'. It is only after the journal 'accepts' the paper that it is given an identifier, and will appear in citation indexes and hence be easily discoverable by search engines.

Preprints

The concept of preprints is that the author publishes a paper which is open to view before it has been formally reviewed and accepted for publication by a journal. The journal F1000Research is a forerunner of what has become termed the Publish-Review-Curate model, where the paper is submitted as a preprint to a platform or repository which is open and freely available, and the paper is then reviewed. The review may be by invited reviewers or even on some platforms by anyone who wants to post a review. This was invaluable during the Covid pandemic where papers were published as preprints to speed up the information flow as the scientific community learned about causes and prevention.

My personal story of preprints relates to my publication of a preprint, 'A Population Perspective on International Students in Australian

Universities' (Heller & Leeder, 2024). This was published in January 2024 and has been viewed more than 500 times and downloaded 150 times. I was able to quote it in submissions to the Australian Government review of higher education and it was picked up by someone in the Department of Education, leading to an invitation to present a webinar to them. Meanwhile, it was still undergoing review by a traditional journal to whom we also submitted it, where it was published 18 months later after extensive review (I return to the actual findings for the research in Chapter 8 on policy). The final publication was much improved stylistically, but the findings and implications were not changed.

Curation

The final step of the Publish-Review-Curate model is curation, which refers to a set of activities that organise and validate research outputs *after* they are made openly available. The addition of metadata to enhance discovery of the article is essential, but there may be additional steps including plain language summaries or quality control measures such as plagiarism checks, or even some form of quality rating. Inclusion in an 'overlay' journal, a collection of articles that might meet a common theme or discipline or a quality measure is also feasible.

There are many variants of this model—the main features of which are shown in this graphic taken from an excellent review by Katherine Corker et al. (2024).

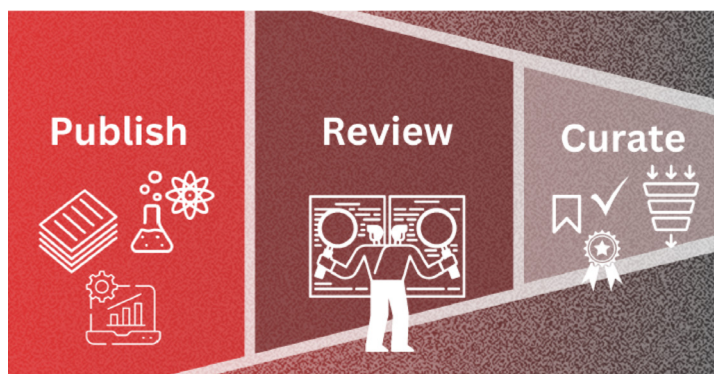


Fig. 3.1 The Publish-Review-Curate model of publication. Corker et al., 2024, CC-BY 4.0.

One of the key variants depends on whether and at what stage of the process the paper is validated. By validated, we mean that ideas and evidence expressed in the article have been accepted by the scholarly community—that is it has been thought to be acceptable for publication by peers through peer review. The decision as to whether, and at what stage of the process, validation is offered varies considerably between different publishers and repositories and platforms. On some platforms, such as F1000Research, the assignment of an identifier depends on an automated editorial decision based on reviewers' recommendations. This is an evolving field, so expect much future change.

An alternative approach is not to offer a decision about validation, but allow the reader to make up their own mind based on the paper and its published reviews. This is the model of eLife, one of the leaders in open publishing. It has led to articles in eLife not being indexed by the Web of Science, the world's largest citation database (eLife, 2024).

Journal impact factors

This leads us to consider the benefits of being cited, other than that of the research being visible. The more a paper and the journal in which it appears are cited, the higher the journal impact factor. Authors feel pressure to publish in journals with a high impact factor, since universities use this in academic staff recruitment and promotion policies. There has been criticism of impact factors (Larivière & Sugimoto, 2019), and Onstad, (2024) articulates the doubt that an impact factor really represents the scientific value or social impact of the research:

The JIF [Journal Impact Factor] was not created to be used in the scientific reward system, but rather a construct of publishers to compete. It does not represent a quantitative measure of the relative value of an author or a paper to society or science.

Nevertheless, the problem persists—universities and the sector as a whole should review their institutional policies relating to recognition of publication.

Diamond Open Access

The Diamond Open Access model of open publishing (Coalition S, n.d.b) is:

[...] a scholarly publication model in which journals and platforms do not charge fees to either authors or readers. Diamond Open Access journals are community-driven, academic-led, and academic-owned publishing initiatives. Serving a fine-grained variety of generally small-scale, multilingual, and multicultural scholarly communities, these journals and platforms embody the concept of bibliodiversity. For all these reasons, Diamond Open Access journals and platforms are equitable by nature and design (para 1).

This contrasts with other types of open access: Green, where the accepted version of the paper is also published in a repository (usually institutional) via self-archiving; Gold, where the journal publisher offers open publishing, typically following the payment of an article processing charge (unless given a waiver if the author is from a defined set of low-income countries) and the article has an open licence which specifies how it may be used; and Bronze, where the journal offers access to the article, but without an open licence.

The Toluca-Cape Town Declaration is the result of discussions at Diamond Open Access Summits in Mexico in 2023 and Cape Town in 2024 (SPARC, 2025). The SPARC report clearly defines the Diamond Open Access model as ‘community-owned, community-led, and non-commercial [...] It emphasizes the value of amplifying diverse voices and tailoring communication to address local and global needs’ and includes contributions from many in the Global South, noting ‘The Declaration stresses the vital need for greater localization in scholarly communications’. The report quotes Emily Choynowski (para 24):

My hope is that the Declaration will encourage the emergence of a global network of autonomous but collaborative communities, each formed according to local needs and local priorities—empowering local research networks to reclaim their scientific authority and regain control of their scholarly outputs.

Here is the Declaration in full:

Toluca-Cape Town Declaration on Diamond Open Access

Following the 2023 Toluca Global Summit, we, the 2024 Cape Town Global Summit participants, affirm that sharing knowledge is a human right.

As such, scholarly knowledge must be a public good. It must be accessible to all communities, including readers and authors, without barriers and paywalls. Participation in knowledge production and communication must be free of prejudice and bias.

In line with the 2021 UNESCO Recommendation on Open Science, Diamond Open Access is community-owned, community-led, and non-commercial.

Social justice, equity, and inclusivity are fundamental to Diamond Open Access, enabling it to be a driver of decolonisation and demarginalization.

We commit to regional and language diversity in scholarly communication. The implementation of Diamond Open Access needs to be tailored to address both local and global challenges and supported by systems of research assessment.

Case studies

An example of efforts to advance Diamond Open Access in Africa is the Coalition for Open Access Publishing of Public Health in Africa (COPPHA) (WACREN, n.d.), which aims to build a community-owned, fee-free publishing ecosystem. This work is supported by platforms such as BAOBAB (n.d.) and PublishNow (n.d.), which provide preprint and open-review infrastructure. While these platforms are not themselves Diamond OA publishers, they form part of the wider open-science environment that can enable Diamond OA publishing to develop.

Open Book Publishers (n.d.) is an example of a Diamond Open Access publisher, offering fee-free access to a wide range of academic books:

We are the leading independent open access publisher of academic research in the Humanities and Social Sciences in the UK: we're award-winning, not-for-profit, run by scholars, and committed to making high-quality research freely available to readers around the world. Access all our books online or download them for free, with no Book Processing Charges (BPCs) for authors (para 1).

I must declare a special interest, as not only is Open Book Publishers the publisher of the book you are reading now, but I am one of 8 co-editors of *Stories of Hope: Reimagining Education*, published by Open Book Publishers (Abegglen et al., 2025).

A related initiative that speaks to the governance and sustainability principles underpinning Diamond OA is the COPIM project (Community-led Open Publishing Infrastructures for Monographs: COPIM, n.d.). COPIM offers:

an alternative organisational principle for governing community-led publishing projects based on mutual reliance, care, and other forms of commoning. Termed ‘scaling small’, this principle eschews standard approaches to organisational growth that tend to flatten community diversity through economies of scale. Instead, it puts forward the idea that scale can be nurtured through intentional collaborations between community-driven projects that promote a biodiverse ecosystem while providing resilience through resource sharing and other kinds of collaboration (Adema & Moore, 2021, p. 27).

Open licences

Open access relies not only on making publications freely available but also on providing clear permissions for reuse. Because copyright defaults to ‘all rights reserved’, open publications require licences that explicitly grant reuse rights. Creative Commons licences (Creative Commons, n.d.a) were developed for this purpose:

Creative Commons licenses give everyone from individual creators to large institutions a standardized way to grant the public permission to use their creative work under copyright law. From the reuser’s perspective, the presence of a Creative Commons license on a copyrighted work answers the question, What can I do with this work (para 1)?

Creative Commons (CC) licences come in six different forms, from most permissive (CC BY) to more restrictive forms that limit commercial use, derivatives, or require share-alike conditions. This book is licensed under CC BY 4.0, so you are free to share and adapt the material for any use, even commercial, provided you give appropriate credit through attribution (Creative Commons, n.d.b). There is more detail about Creative Commons licences in Chapter 8.

Barriers and hurdles to open access publishing

I have mentioned some of these already, especially the burden of article processing charges imposed by publishers, and the institutional and sector-wide policies that reward publication in high impact journals.

Natalia Kaliuzhna and colleagues (2025) identified 82 barriers, in four groups: Practical Barriers (financial, infrastructure, and resources), Lack of Competency (lack of skills and knowledge), Sentiment (apprehension and perceptions of OA), and Policy and Governance. Philips Ayeni and colleagues (2025) identified five systemic and institutional barriers to open access publishing in Canada—unaffordable article processing charges, precarious career stage and tenure requirements, unequal privileges, gender, and conflicting and unsupportive institutional OA policies. They conclude:

[...] there needs to be a concerted effort in promoting and funding viable and sustainable OA models, which removes the financial burden of OA publishing from researchers. There is also an increasing need to promote OA culture within academia and provide institutional support for OA publishing. Notably, the model of academic scholarship that places prominence on journal metrics for tenure and promotion needs to be reformed (Abstract).

Katie Wilson and colleagues (Wilson et al, 2024) and Madeleine Pownall and colleagues identify gender as a potential barrier, especially as it relates to early career researchers (Pownall et al., 2021).

In conclusion

Opening up publication of research findings is a key component of increasing knowledge equity. It requires a transformation of the traditional publication model which is dominated by large multinational publishing houses. There are also many barriers that limit open publication, including those put in place by universities and regulatory authorities, and have the effect of supporting the traditional model. Luckily there is much activity in the field of open publishing, and exciting innovations in place and in prospect.

Steps towards distributing knowledge for equity

- Open publishing models can help counter the restrictive practices of commercial publishers, increasing equity of access to knowledge.
- Universities should review the institutional policies that create barriers to open publication.

- Journals that encourage open reviewing of research submitted for publication offer increased transparency.
- Diamond Open Access describes community-driven, academic-led, and academic-owned publishing initiatives where fees are not charged to either authors or readers.
- The Publish-Review-Curate model of publication offers an innovative approach to open equitable publishing.

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PART C. REDUCING INEQUITY IN ACCESS TO EDUCATION

Introduction

In many ways, this section is the core of the book. It highlights the centrality of online education and identifies the need for the online approach to be of high quality if students, academics, and the wider community are going to accept and adopt this form of higher education. Chapter 4 argues that just transferring lectures online is not best practice, and instead offers discussion of some alternative ways in which to create and achieve best practice. Chapter 5 discusses how to distribute education to where it is needed—taking it to the student rather than the student coming to it—thus overcoming limitations of time and place. What new structures are needed in a distributed university? The chapter suggests ways in which the education system might transform to distribute education to where it is needed. In Chapter 6, open education is identified as being critical to the pursuit of equity in access to knowledge through the distribution of education and knowledge production without barriers. Here we discuss the evolution and promise of open education, its resources and practices.

4. Best practice in online education

Online education is key to the equitable distribution of knowledge, removing geographical and other barriers—hence broadening access to higher education and diversifying the student population. If the majority of education is to take place online, it is important that it is governed by best practice, and the chapter outlines ways to ensure this.

Online technologies offer the flexibility to learn from anywhere, at any time, and from a diverse range of instructors, and they can also facilitate enhanced forms of collaboration, at both local and global levels. In order to ensure that online learning achieves a standard of quality comparable to (and in some respects exceeding) face-to-face provision, it is important to follow established best practice. Clear articulation of best practice also helps address the persistent perception that online learning is inherently inferior to face-to-face education. Best practice will require attention to pedagogy, technology, design principles, assessment, accessibility and student support from teachers, designers, and those providing infrastructure and institutional support.

Online teaching has been around for many years, and an increasing trend towards its implementation has occurred both in the formal higher education sector and outside it (McKinsey & Company, 2022). This increasing trend accelerated when the Covid pandemic pushed most universities to switch to teaching online, moving away from their usual face-to-face mode of instruction. This led to two competing outcomes. First, the potential of the online mode has been realised to become the ‘new normal’ (Stracke et al., 2023) in higher education—most often in a hybrid model together with face-to-face teaching. Second, those universities who did not have experience or infrastructure to support online teaching just put their lectures online, often with poor student feedback. Charles Hodges and colleagues (Hodges et al., 2020) discuss

the difference between well-planned online learning and courses offered online in response to an emergency. Noel Carroll and Kieran Conboy (2020) make the point that it is important to ‘normalise the new normal’ to make sure that organisations adapt appropriately to the increased reliance on technology.

There have been many reviews of comparisons between online and face-to-face teaching. As mentioned above, comparing face-to-face teaching before Covid with emergency remote teaching is not an appropriate comparison. Most appropriate reviews conclude that there is no systematic difference in outcome between the two. The advantages we discuss throughout the book that come from distributing learning are dependent on the online delivery mode. Of course, comporting with best practices and meeting the needs of students for knowledge and skills are crucial for both online and face-to-face education.

As James Yoonil Auh (2025) states:

To reclaim the university’s role as a site of intellectual and moral development, we must move beyond the shallow dichotomy of online versus in-person learning. Instead, we must ask: What kind of mind are we cultivating in the age of intelligent systems? Are we creating spaces for critical reflection, ambiguity and dissent—or simply accelerating the credentialing process (paras 15-16)?

We can consider best practice as it relates to institutional support, teacher competence, requirements of students, curriculum design, and programme design.

Institutional support

Taking the student engagement domain further, I like the diagram below, which comes from a review paper by Chantal Roddy and colleagues (2017). It appears in a section on student support and wellbeing services—an area I have picked out for mention since it is central to best practice in online education.



Fig. 4.1 The “four pillars” to supporting student success. Roddy et al., 2017, CC BY.

The Australian Department of Education and Training and the Tertiary Education Quality and Standards Agency commissioned the Asia-Pacific Economic Cooperation to publish the results of a broad multicountry review of how to maintain quality in online learning (Asia-Pacific Economic Cooperation, 2019). The resulting toolkit included the following nine quality domains, which largely relate to the institutional requirements to support online learning, grouped under the following headings:

- Innovative culture:
 - Leadership and management: Leadership and management actively support the realisation of quality online and blended education by developing strategic plans, creating performance indicators and by influencing the culture of quality within an institution.
 - Staffing profile and professional development: Staff involved in the teaching, management and support of online and blended education have the appropriate qualifications, knowledge, and skills required to support the achievement of student learning outcomes.
 - Review and improvement: Performance data and a broad range of feedback from stakeholders, including students, are fed into planned cyclical reviews.

- Student engagement:
 - Resources: The necessary technical and digital infrastructure is sufficiently resourced to enable accessible, reliable, and compatible provision of online education for all students regardless of location.
 - Student information and support: Mechanisms to identify students who require additional technical, educational, and personal support are implemented and monitored; and each student is aware of all support systems in place. Clear information about online study is reliable, accessible, and regularly updated for both current and prospective students.
 - Student experience: Each student has the opportunity to interact socially and academically with staff and other students and feedback of student experience is acted on through monitoring.
- Student achievement:
 - Curriculum design: Curriculum design is based on sound educational principles and provides a coherent and interactive series of learning experiences that develop knowledge and skills aligned to learning outcomes appropriate to the qualification level.
 - Assessment and integrity: A range of policies and mechanisms ensure that assessment tasks for students studying online are clearly communicated, effectively moderated, and allow opportunities for students to demonstrate the program learning outcomes.
 - Learning outcomes: Learning outcomes for students studying online are equivalent to face-to-face cohorts for the same qualification level and are assessed with rigour.

These domains will be relevant to any educational programme, not just online, and attention to each of these will be important to maintain best practice. The toolkit offers more detail and case studies and is worth exploring.

Requirements of the teachers

Roddy and colleagues (2017) included a list of required teacher competencies in their review of best practice in online learning and I've picked out some of them:

- **Communication skills:** Student communication in online learning environments relies on timely and clear interactions which might include a variety of formats.
- **Technological competence:** Ability to navigate the online technology is important for course development and revision (speedy revision of resources being one of the benefits of online delivery) as well as responding to student technology-related problems. This must include competence in the evolving field of AI as it becomes more relevant to online education.
- **Provision of student support and informative feedback:** The absence of face-to-face interaction should not reduce the imperative for responsiveness, careful monitoring and clear feedback on progress and assessment.

This is an indication that best practice in online education requires many skills. Training of teachers who are involved in online instruction and course development is important, and should be part of institutional support. Although most of these skills again relate to any form of teaching, the application to the online format does require special attention.

Requirements of the students

Online learning usually requires students to work autonomously and to self-regulate their learning, potentially leading to a high risk of failure to engage with the course and to drop out. This places a high responsibility on both the student and the teacher to ensure students are well equipped to manage, pace, and advance their own learning and performance. Intrinsic motivation of students as well as their intentions on enrolment have been suggested as predicting course completion and grades (Chaker et al., 2022). There is a large literature about student factors predicting outcome. My only contribution to this literature

is a study comparing outcomes of two online courses, both with and without tutor involvement (Heller et al., 2019). We found no difference in outcome if tutors were or were not involved, and concluded, in agreement with much of the literature, that student motivation is key to success in online education.

Curriculum design

An Online Course Design Guide was prepared by MIT (n.d.) as part of its *Digital Learning Toolkit*. You can work through the guide easily and although it was prepared in 2014, the principles remain relevant today. The guide outlines the assumptions (para 5):

Content development for online courses is more time-consuming because in the absence of face-to-face interaction, there is a greater need for creating rich media that stimulates virtual interaction.

Designing online learning activities involves a diverse set of technology and tools; instructors must learn how to use the technologies and integrate them in the online environment.

Topic- and question-driven discussion is more natural in a face-to-face environment, so instructors must intentionally plan for and build in similar engagement opportunities within online curriculum.

Because many online courses draw in learners from all over the world, careful consideration must be given to diverse demographics and backgrounds when developing material.

Learners do not have the benefit of sitting side-by-side with their classmates in an online course; thus, it is easier for learners to feel isolated, and a significant effort must be exerted to make them feel part of a community.

You might also like to explore the open access paper by Christian Stracke and colleagues (2023) on different types of online course, as this is comprehensive and contains a very useful guide to online programme development. They develop eight 'typologies' for a developer to consider—context, objectives, pedagogy, content, interaction, technologies, support, assessment—so there is much more to think about in best practice online course development than just the content!

Finally

It is clear from the discussion above that course content is only one aspect when thinking about how to design a programme. Going further, there are a number of other areas to consider. These are the other aspects of the framework for distributing knowledge for equity, the organising feature for this book. As we design our course, we will have to think about each aspect of the framework: for example how will the course fit into a distributed structure and meet policy requirements, and what collaborations will be required?

Steps towards distributing knowledge for equity

- Online education is increasingly becoming a core component of higher education, so attention to best practice is essential.
- Rather than framing online and in-person learning as opposites, we should focus on selecting approaches that best support intended learning outcomes.
- Best practice should consider institutional support, teacher competence, requirements of students, curriculum design, and programme design.
- Best practice should also take into consideration the other components of the framework for distributing knowledge for equity introduced in this book.

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5. Distributed education delivery structure

Distributed education implies the provision of education where it is needed—taking it to the student rather than the student coming to it—thus overcoming limitations of time and place. This chapter identifies some of the structural transformations required for the higher education system to be able to distribute education to where it is needed.

Distributed education has been defined in the *Analytic Quality Glossary* (Harvey, 2004-25) to occur

[...] when the teacher and student are situated in separate locations and learning occurs through the use of technologies (such as video and internet), which may be part of a wholly distance education programme or supplementary to traditional instruction (Distributed education).

Distributing education to reduce inequity is the key theme of this book, and will require appropriate development and delivery structures. The proposal for structural change is to reduce centralisation of education and offer a more thorough distribution where students remain in their populations while they access online education. Online delivery can be supplemented through local hubs, as shown in this diagram taken from my book (Heller, 2022). The local hubs may be physical, where face-to-face options are required, or virtual and can include international settings:

Local networks of students around these local learning hubs would create self-directed and collaborative learning experiences, and include tutor support [...] Some of the physical space requirements might be provided by local industry or community partners, who will also feed into local strategic development and provide educational experiences where appropriate for education for professions, and offer the opportunity for practice based education (Heller, 2022, p. 55).

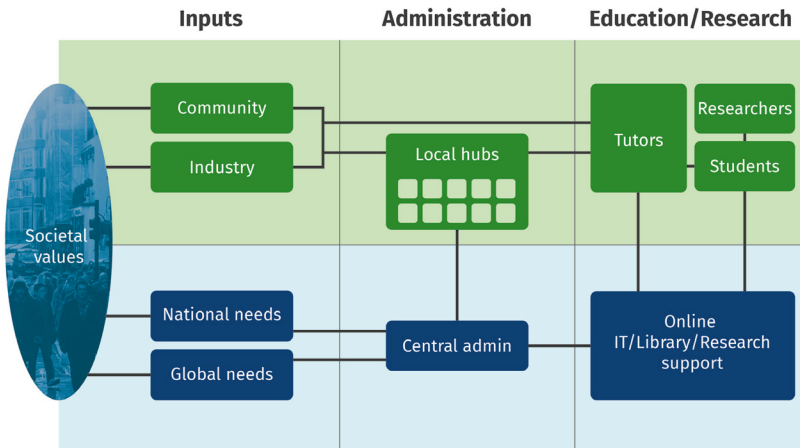


Fig. 5.1 The Distributed University. Heller, 2022, CC BY 4.0.

As we saw in Chapter 2, the distributed structure will also facilitate incorporation of information derived from distributed populations in the process of knowledge creation through research which includes the experience of local populations. This can then feed into educational programmes.

Case studies

Australia was a pioneer in distance education due to the large size of the country and its dispersed population. The Australian Government supports the Regional University Study Hubs programme for regional and remote students to support their study of tertiary courses from any Australian institution and complete higher education without having to leave their community (Department of Education, n.d.).

Romana Martin and Tania Broadley (2017) from Queensland, Australia describe their experience in a multi campus university where New Generation Distributed Learning is defined as:

[...] a multidimensional learning experience that harnesses a range of real-time telecommunication technologies such as video conferencing and web-conferencing, online collaborative learning environments, and rich media resources to provide a highly interactive face-to-face learning experience augmented with a comprehensive resource base and collaboration tools (p. 54).

Qadir Bukhsh and Muhammad Chaudhary (2015), from an open university in Pakistan, report on their experience.

From outside the traditional higher education sector, Peoples-uni was a fully online postgraduate distributed programme with tutors from 50 countries and students from 100 countries—who gained validated master’s level awards and continuing professional development certificates—all without physical premises (Heller et al., 2022).

Distributed organisations and leadership

The emergence of a more distributed form of organisational structure has arisen, both by the move towards remote working during the Covid pandemic and the availability of software for communication and collaboration. Distributed teams, groups who work together from different geographical locations, rely on digital communication. This also allows for a distributed leadership to counter the problems of managerialism in the university sector.

Centralised control by managers, guided by governing bodies (university councils here in Australia), who may lack educational credentials themselves, has come to define university governance. Managerialism has been heavily criticised by academics who resent intrusiveness and reduction in academic autonomy. A key feature of the distributed university is a reduction in size and function of central university campuses, replaced by local hubs. A natural result of this will be to reduce the centralisation of university administration and evolve to a distributed leadership model.

Distributing leadership

Distributed leadership refers to an approach in which leadership responsibilities are shared across an organisation rather than concentrated in a single role. As Sean McPheat (n.d.) puts it, it ‘empowers individuals across an organisation to take ownership of leadership responsibilities and share decision-making authority (para 1)’. This is already a topic of interest in secondary education, where a study of teachers from 34 countries demonstrated that distributed leadership had a positive

impact on their use of innovative teaching practices (O'Shea, 2021). Back in 2008, an editorial to introduce a special issue of the *Journal of Educational Administration* on distributed leadership concluded that there 'is evidence that it can positively influence organisational culture and outcomes (Harris, 2008, Coda)'. Digital technologies can make distributed leadership more feasible, enabling connection and collaboration across roles, locations, and time zones. I return to this theme in Chapter 12 on transformation.

Case study

Distributed leadership is a key aspect of an Innovation Scholar Scheme at Manchester Metropolitan University (n.d). The scheme empowers scholars to take the institutional lead on key themes, through a distributed leadership model, creating a platform and catalyst for innovative learning, teaching and assessment interventions and enhancements.

Distributive technology

The internet is the major technology that allows for a distributed model, and in order to reduce the centralised power of big providers, the concept of a decentralised version of the internet has evolved—termed Web 3.0—and has since been extended towards Web 4.0, which places greater emphasis on interactivity. Consistent with this is the evolution of social media away from centralised organisations (Twitter or X) towards decentralised social media, termed the Fediverse (Xavier, 2024). The Fediverse stands for a federated universe of independent internet servers which use a common protocol, and is discussed in more detail in Chapter 9 on digital infrastructure. The notion of federation—distributed independent activities linked by some common principles and policies—is the kind of model we could consider for our transformed educational structure. As AI takes its place in the world of higher education, we also should note the feasibility of federated AI here—this comes up again in Chapter 9.

A related development is the rise of Decentralized Autonomous Organizations (DAOs) (Law, 2021) which have been described as having the potential to permanently change the structure of organisations.

They utilise the decentralisation inherent in blockchain technology and operate autonomously yet collectively without centralised control. They have the potential to eliminate hierarchical management in favour of collective decision-making and governance (Davidson, 2024). The *Decentralised Autonomous Organisation Toolkit* (World Economic Forum, 2023) states: ‘From finance to social networking to philanthropy, these digital, communal organizations attempt to reimagine how we connect, collaborate and create (Executive summary)’.

It is still not clear if blockchain has a potential role in education, but as a type of shared decentralised database it would seem appropriate to follow its development and appraise its role in a distributed education model. Amr El Koshiry and colleagues (2023) suggest:

While the use of blockchain technology in education is still in its early stages, the available data suggest that it has significant potential to transform the education sector and improve the efficiency and transparency of educational systems (Abstract).

Anthony Camilleri (2024) tells us that the excitement about blockchain outstripped its actual use, but introduces us to distributed ledgers (of which blockchains are a specific example) as databases collectively maintained and shared. Thus they have potential for searching, finding, and attributing resources, with special relevance to Open Educational Resources.

Distributed autonomous organisations for learning have been proposed as the future structure for education for health professions (Cabrera et al., 2022). Stated benefits include alignment with societal priorities and support for equity—music to my ears! Bittopia (n.d.) has apparently been conceived as a decentralised autonomous university, but is still under development.

Maybe we can remove the central campus entirely and distribute its functions between the physical and virtual hubs envisaged in the distributed university? The utilisation of some of these newer models of organisation could be adapted and developed in the service of distributing education online and physically away from central university campuses to fully distribute leadership and administration. At the time of writing, these are early days in the development and use of distributed organisational technologies, but I have included them in the book as they have the potential to support the governance of a truly distributed university.

Academic autonomy

One of the main complaints of university staff is that they are subjected to excessive managerial oversight and lack autonomy in both the development and delivery of their courses. One of the main advantages of the distributed university structure will be added academic autonomy (you might remember that autonomy is one of the four ethical pillars I discussed in Chapter 1). The case study below suggests that many of the features of the distributed university were to be seen in the UK Open University (OU), a forerunner of distributing education.

Case study

Reflection on the early years in the UK Open University, by Tom Heller, retired Senior Lecturer (personal communication).

I remember the days when there were OU Regional centres all over the UK—and even to serve British Services and their families stationed in Germany and Cyprus. Graduation ceremonies were held in Paris as well as Birmingham and Milton Keynes. The structures for making the courses (my job) were highly devolved as well in those days. For example, to make the mental health courses a group of academics, including me, were given three years before launch date and substantial funding to work with ‘service users’ to create the course, produce the accompanying readers, TV programmes and course work materials and set tasks and exam structures. I can’t remember any interventions from the managerial class above us and even the BBC were so easy to work with in those days and were happy to give a voice to people [...].

While talking about the OU, I should mention that open universities were the first to talk about ‘openness’. As Andy Lane (2009) reminds us in *The Impact of Openness on Bridging Educational Digital Divides*, the initial chancellor of the OU defined openness as being open to people, places, methods, and ideas.

Letting the students lead

Moving even further along the path to distribute and decentralise education would be to put the student in control. As I reflect elsewhere (Heller & Leeder, 2025):

[...] story of hope that university education can evolve to reflect what students actually want and need in terms of a hopeful and liberatory education. At present, universities generally offer what they think students want and need—or what governments determine they can have—and courses are planned “top down” often to meet the needs of the university rather than the student (pp. 17–18).

Students would choose and access online courses from peer-reviewed curated repositories, guided by a mentor either from the institution offering the courses, or elsewhere, and gain microcredits based on accredited assessments, leading to an award offered by a partner university or other provider. As noted in the paper (Heller & Leeder, 2025, p. 17), ‘This model aims to enhance accessibility, reducing inequities tied to geographic location and course availability’. Keeping the student more involved in the community as they learn rather than in the ivory tower of the central university campus allows all kinds of benefits. The community, such as local industries, can contribute to the learning and offer employment opportunities to graduates.

The advent of modern online educational technology would facilitate this transformation, and there are theories and some examples on which we can draw. Could we hope for this to be the vehicle for real reform and transformation—maybe even leading to a global approach to democratising education, driven globally without replicating previous patterns of academic colonisation? Can this give us hope for a future of university education that reflects global needs and modern ways of communicating knowledge, and provides agency for the students and academics who are the heart and soul of the Higher Education system (Heller & Leeder, 2025, p. 24)?

David Wiley, one of the founders of the open education movement who we meet in the next chapter, has expressed similar ideas in the context of the future response to the AI revolution (Contact Nord, 2025):

Students could secure their learning from any source and be assessed and credentialed at any time—isn’t that the obvious direction of travel for AI and our ecosystem (When you look to the longer term)?

As we move through the book, I hope that the theme of utilising modern communication technology to transform education through distribution and decentralisation is emerging.

Implications for research

Would a distributed structure work for research carried out by university academics? There are obviously physical requirements for some research activities, such as those in ‘wet’ laboratories. Some of these could even be carried out in the premises of industry partners—with the advantage of input by industry into the research itself and early incorporation of results into practice. There are also many examples of distributed research networks, such as those which add the benefit of including wider experience than can be gained in one centre. Multicentre clinical trials are a good example. Tackling one of today’s large problems, the Distributed AI Research Institute (n.d.) is an interdisciplinary and globally distributed AI research institute across North America, Europe and Africa. Their distributed and community-based research allows it freedom from the influence of ‘BigTech’.

There will be special ways of managing and organising distributed research teams. There are software solutions to manage and support data and analytic methods for distributed research networks as offered by Melanie Davies and colleagues (2016), who note the essential importance of trust. Enric Hidalgo (2019) has described the importance of teamwork and the benefits of agile project management in collaborative research initiatives.

Given these caveats, the described structure of the distributed university should be suitable for both the creation of knowledge through research as well as for the distribution of knowledge through education.

Steps towards distributing knowledge for equity

- Distributing education (defined as when the teacher and student are situated in separate locations and learning occurs through the use of technologies) is key to reducing inequity, and will require appropriate development and delivery structures.
- Structural change to the distributed university model involves central campuses largely replaced by virtual or physical regional hubs where students remain in their populations while they access online education.
- A distributed structure will allow distributed leadership, reduce intrusive managerialism, and improve academic autonomy.

- Distributive technologies which facilitate decentralisation, such as the federated universe of independent servers (Fediverse), Web 3.0, and Decentralised Autonomous Organisations, hold promise for a distributed educational infrastructure.
- Inverting the hierarchy, so that the student rather than the university chooses online courses to access from any source, is a potential extension of the distributed approach.
- A distributed structure also holds promise for research, with special methods available for managing distributed research networks.

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6. Open educational resources and practices

Open education is critical to the pursuit of equity in access to knowledge through the distribution of education and knowledge production without barriers. The chapter discusses Open Educational Resources, Open Educational Practices, the synergy between Diamond Open Access publication and Diamond Open Access education, as well as some of the structural and regulatory issues that are required to overcome resistance to the use of openness in higher education.

The underlying principle of open education is nicely stated by Rory McGreal (2017, p. 293) as follows: ‘publicly-funded research and educational content belongs to the people and should therefore be open and accessible to them’. He links this to being able to achieve Sustainable Development Goal (SDG) number 4 (Global Goals (n.d.)): ‘Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’. We will continue to encounter SDG 4 in various chapters of this book!

Creative Commons (n.d.), discussed in various parts of the book in relation to their vital role in providing licences to enable openness, has a section on open education on their website which says: ‘Opening up and sharing education is necessary if we are going to solve the world’s most pressing challenges (para 1)!’ Again, this is linked to the importance of open access in contributing to efforts to tackle many of the Sustainable Development Goals.

Here is an excellent definition of open education (the original website source of this definition no longer exists, but it is quoted in many places, including P2PU, n.d.):

Open Education encompasses resources, tools and practices that employ a framework of open sharing to improve educational access and effectiveness. By combining the traditions of knowledge sharing and creation with 21st century technology, Open Education wants to create a vast pool of openly shared educational resources, while harnessing today's collaborative spirit to develop educational approaches that are more responsive to learners' needs. Open Education seeks to scale up educational opportunities by taking advantage of the power of the internet, allowing rapid and essentially free dissemination, and enabling people around the world to access knowledge, connect and collaborate. Open allows not just access, but the freedom to modify and use materials, information and networks so education can be personalized to individual users or woven together in new ways for diverse audiences, large and small (Lesson 1.1 What is Open Education).

A broader view with an emphasis on social justice is taken by Sarah Lambert in her paper 'Changing Our (Dis)Course: A Distinctive Social Justice Aligned Definition of Open Education' (Lambert, 2018, p. 239), where she defines open education as:

Open Education is the development of free digitally enabled learning materials and experiences primarily by and for the benefit and empowerment of non-privileged learners who may be under-represented in education systems or marginalised in their global context. Success of social justice aligned programs can be measured not by any particular technical feature or format, but instead by the extent to which they enact redistributive justice, recognitive justice and/or representational justice.

This intersects with a definition of the broader concept of open science published by UNESCO (2023) as part of the *UNESCO Recommendation on Open Science*:

Open science is a set of principles and practices that aim to make scientific research from all fields accessible to everyone for the benefits of scientists and society as a whole. Open science is about making sure not only that scientific knowledge is accessible but also that the production of that knowledge itself is inclusive, equitable and sustainable (para 1).

A collective editorial by more than 50 academics (Bozkurt et al., 2023), ‘Openness in Education as a Praxis: From Individual Testimonials to Collective Voices’, reminds us that openness in learning as a concept is much greater than just reducing barriers to access:

[...] the understanding of Openness in Education as a complex, multilayered concept intricately woven into an array of values. These range from aspects such as sharing, access, flexibility, affordability, enlightenment, barrier-removal, empowerment, care, individual agency, trust, innovation, sustainability, collaboration, co-creation, social justice, equity, transparency, inclusivity, decolonization, democratisation, participation, liberty, and respect for diversity (Abstract).

This chapter focuses on the applications of open education in practice. It starts with a discussion about Open Educational Resources (OER), a topic to which we will return in Chapter 8 to plot the policies that enabled their development and adoption.

Open Educational Resources (OER)

UNESCO’s 2012 Paris OER Declaration (UNESCO, 2012) quotes the definition of OER (actually coined in a UNESCO forum in 2002):

OERs are teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open licence that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (Preamble).

In a helpful 2024 summary, Libing Wang and Tianchong Wang (2024) provide further context:

Despite significant progress in expanding global access to higher education, profound inequalities persist. Teaching and learning resources remain prohibitively expensive, creating financial burdens and retention barriers for students. Furthermore, paywalled, copyrighted content limits academics’ ability to adapt materials for local relevance, particularly in the Global South (para 1).

The article also quotes David Wiley’s (2014) 5 R’s of openness:

- Retain—the right to make, own, and control copies of the content.
- Reuse—the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video).
- Revise—the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language).
- Remix—the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup).
- Redistribute—the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend).

UNESCO (n.d.) has played a major role in the support of OER and has established the *UNESCO Open Educational Resources (OER) Dynamic Coalition Portal* to facilitate global collaborations and dialogue about OER. You can find a lovely short video about OER on the portal, which is worth a look.

Sarah Lambert and Habiba Fadel (2022) identify social justice and equity dimensions of benefits from the use and availability of OER. Redistributive justice, an economic dimension, relates to cost reduction leading to wider access, and recognitive or representational justice allows for the value of OER in diversification of authorship and availability of educational resources.

Lance Eaton identifies three ways of using OER (Eaton, 2025, The OER Adoption Framework):

Adopt: Find an OER and plop it straight into your course.

Adapt: Find an OER, make edits and adjustments for it to fit into your course (and ideally, make it available for others to benefit from).

Build: Create the OER you need and make it available for others.

AI and OER

The role of AI is evolving quickly in education, as elsewhere, and I cover this in more detail in Chapter 9. However, Eaton (2025) provides the following, useful framework for understanding the potential role of AI in OER creation and for guiding engagement with OER more broadly:

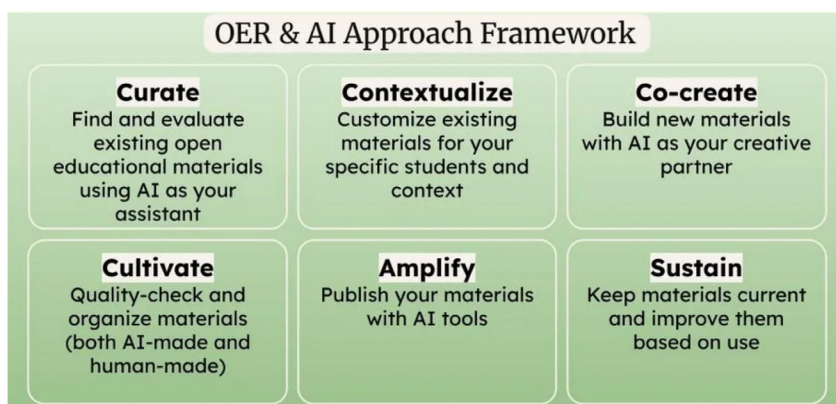


Fig. 6.1 OER and AI Approach Framework. Eaton, 2025, CC BY 4.0.

Influence on educational outcomes?

There has also been a debate about whether the use of OER has any influence on educational outcomes. Lambert and Fadel (2022) quote international research which shows that improved grades, course progression, and student retention are increased by the use of OER, and that the benefits are particularly great for students from disadvantaged backgrounds. David Wiley (2020) quotes assessments which find OER use can close the achievement gap between lower and higher income students, while others find no difference. He makes the point that when assessing this influence it is important to ask an appropriate research question. He suggests that OER have the potential to improve outcomes for all students, but will require OERs to be used in the context of evidence-based teaching practice and innovative approaches with a clear theoretical basis. Rajiv Jhangiani and colleagues (2025) find that the substantial cost savings to students of the use of open textbooks—a key form of OER—does not come at the expense of educational outcomes (see the case study below). A systematic review (Swain & Pathak, 2024) agrees, and finds that OER are used widely in higher education, and also help in cost reduction of textbooks as well as enhancing enrolment and teaching.

Open access to research

As well as resources designed for educational programmes, many of the resources included under the OER banner are scientific research articles

published as open access (OA). This is nicely described on the website of the valuable support and advocacy group Open Education Global (n.d.):

In addition to teaching and learning materials, open education includes research outputs. Open Access (OA) refers to research published in a way that is digital, online, free of charge, and free of most copyright and licensing restrictions. OA removes price barriers such as subscriptions and pay-per-view fees giving researchers, students, and public access to research. As most research is publicly funded OA ensures the public has access to what is funded. OA makes research discoverable, available and reproducible for the advancement of science. When used for teaching and learning Open Access articles are a form of OER (Open Access (OA)).

Synergy between open education and open publishing

The synergy between open education and open publishing has been made clearly by Cable Green, one of the pioneers of open access and, until recently, CEO of Creative Commons. He identifies the similarities in both concept and approach between open education through OER and Diamond Open Access (a model of academic publishing that is open and free to both author and reader). Cable's presentation as part of the 2025 Open Education Week *Shifting to Community Owned and Operated Open Knowledge* (Green, 2025) is well worth a look.

I was delighted to attend the presentation, online of course, which resonated as being highly consistent with the theme of this book. Green said: 'Equity should be at the core of any open knowledge model (slide 3)' and quotes the Creative Commons vision of 'A world where education, culture, and science are equitably shared as a means to benefit humanity' (Creative Commons, n.d., Our vision).

As discussed above, and in Chapter 3 on open publishing, Diamond Open Access is open and free to both author and reader, but Green extends this to being 'at heart a governance model for scholarly publishing controlled and owned by academic-led and -owned communities with the service-related aspects contracted out to service providers' (slide 39).

Green coins the term Diamond Open Access education, to resonate with Diamond Open Access publishing. The features of the Diamond approach for publishing—academic driven, locally owned and free for both authors and readers—are highly consistent with the distributed education model for equity. It would require a new funding model for higher education, one that depended on funding education as a

public good rather than the current commercialised commodification approach. I return to funding in Chapter 12.

Open textbooks

Open textbooks should not be forgotten as an important component of the OER landscape, and in Chapter 3 we encountered Open Book Publishers as a case study, whose catalogue includes a number of open textbooks (see https://www.openbookpublishers.com/categories/textbooks_and_learning_guides) alongside their wider list of monographs and edited collections. From the student perspective, open textbooks offer substantial cost savings and there are a growing number of zero textbook cost (ZTC) programmes that build on this potential.

Case studies

One of the first zero textbook cost (ZTC) programmes was started in Canada by Kwantlen Polytechnic University (KPU) 2018. Rajiv Jhangiani and colleagues reported (2025):

This initiative has since grown to encompass eight credentials and nearly 800 individual courses from which over 24,000 students have benefited from nearly CA\$13 million in cost savings [...] Multilevel modelling that controlled for both between-course and within-courses sources of variance showed that ZTC course sections exhibited comparable mean fill and withdrawal rates and slightly higher mean GPAs than non-ZTC course sections. The findings of this study hold significant implications for higher education policy and practice, demonstrating that the substantial student cost savings that result from the programmatic adoption of open educational resources (OER) via institutional ZTC initiatives do not come at the cost of educational outcomes (Abstract).

African Minds is a not-for-profit, open access publisher based in Cape Town, South Africa (African Minds, n.d.).

We publish predominantly in the social sciences and our authors are typically African academics and thinkers, as well as international academics who have a close affinity with the continent. We offer a new publishing channel to authors frustrated by a lack of support from traditional book publishers as well as with publishing's anachronistic and lengthy approach to making knowledge available. African Minds is therefore not a traditional, commercial publisher. Our emphasis is less on the commercial viability of our publications than on fostering access, openness and debate in the pursuit of growing and deepening the African knowledge base (para 1).

Open Educational Practices

The term Open Educational Practices (OEP) has been created to describe the ways in which Open Educational Resources (OER) can be put into practice. Catherine Cronin (2017, p. 4) defines Open Educational Practices as:

[...] collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners.

This definition does not really encompass the technology infrastructure, the institutional regulatory frameworks that encourage or inhibit openness, or the structural requirements for distributed delivery and knowledge creation. But, as Cronin says, this is an evolving field with a variety of definitions and theoretical frameworks. I cover some of these components of OEP in the rest of the chapter.

Open pedagogy

The term Open Pedagogy is also used, sometimes considered to be same as the term Open Educational Practices. There is a logic to this, but if we think about pedagogy meaning the theory, method, and practice of teaching, we probably should consider Open Pedagogy as a separate theme.

Open Pedagogy has been defined by Robin DeRosa and Rajiv Jhangiani (2017, para 2) as ‘a site of praxis, a place where theories about learning, teaching, technology, and social justice enter into a conversation with each other and inform the development of educational practices and structures’.

I like the diagram from Phil Tietjen and Tataleni Asino (2021) showing that openness is important in the design and application of educational activities and can involve many different players.

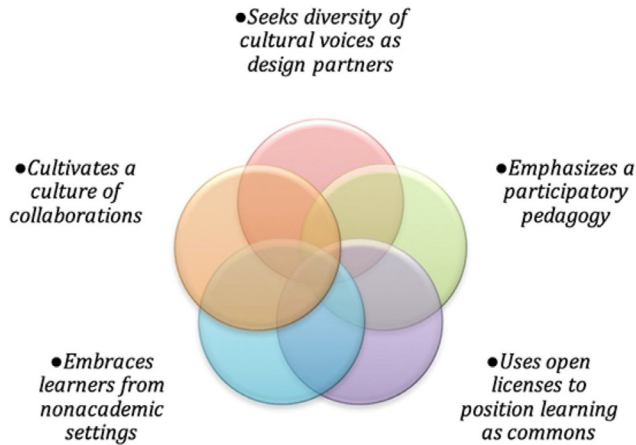


Fig. 6.2 Five elements of open pedagogy. Tietjen & Asino (2021), CC BY.

Open educational technology infrastructure

In Chapter 9 on digital infrastructure I discuss the issue of knowledge surveillance, where proprietary educational software programmes are used by EdTech companies to collect and monetise data. As summarised by Tel Amiel (2024, para 4), ‘adoption of proprietary platforms centred on the massive collection and processing of behavioural data and works generated by educational actors by private, for-profit corporations is antithetical to the ethos of education and the common good’.

The same article makes the case for the principles of Open Education to be applied to the development of educational infrastructure to preserve the principles of the common good in education. The movement towards open educational technology finds expression in initiatives such as OpenEdTech (n.d.) where various organisations work together to promote interoperable systems and create trust rather than profits.

Moodle (n.d.) is an open-source online learning platform (learning management system), used widely for a number of years and host to more than 51 million courses. There are further innovations in open learning management systems such as Forge (n.d.) which articulates with other open infrastructure technologies and licences, and allow student co-creation and collaboration. Forge is part of the LibreTexts (n.d.) ecosystem, which offer access to free open textbooks online

as well as educational and assessment tools and assistance in OER development.

Dave Lane and Claire Goode (2021) describe a suite of open access educational infrastructure providing a whole digital learning ecosystem to underpin the OERu, a collaboration between an international group of universities. The technologies are low cost, openly licensed, and self-hostable by interested individuals and institutions.

Collaboration and sharing

Openness depends on collaboration and sharing in the creation and use of educational resources, and collaborative practices were identified above as part of the definition of Open Educational Practices. Sandra Abegglen and colleagues (2023) have proposed the addition of collaboration as a central element to education, with openness as a prerequisite and an antidote to the neoliberal competitive approach to education. While this may be a utopian goal, there are still opportunities for, as well as great examples of, collaboration in today's higher education system. In Chapter 11, I expand on the topic of collaboration, but wanted to mention it here as it is key to openness.

Structures and regulations

Institutional support is required for the development and use of OER. Given the competitive business model that underpins higher education in many countries, most university courses and their material remain behind paywalls for the exclusive use of enrolled students.

Funders of research have led the drive to make research findings openly available as open access, with many funding organisations requiring the publication of papers resulting from funded research to be published as open access. We have come across Plan S in Chapters 2 and 3, but I mention it here as it gives us a model that could be applied to educational resources. Plan S (Coalition S, n.d.) is:

[...] an initiative for Open Access publishing that was launched in September 2018. The plan is supported by cOAlition S, an international consortium of research funders. Plan S requires that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms (About Plan S).

This reflects a wider trend among funders to reshape the economics of open access, though approaches vary.

The Gates Foundation (2025) have said that they will not pay for article processing charges which many journals require to allow open access to their articles. This adds to their previous requirement that all publications resulting from their funding be made immediately open access under a CC BY licence, typically through compliant APC-free routes such as Gates Open Research or deposit in PubMed Central.

Most of the resources that come under the heading of Open Educational Resources (OER) are individual resources used in the educational process. In my paper ‘Plan E for Education: Open Access to Educational Materials Created in Publicly Funded Universities’ (Heller, 2023), I argue that open access should extent beyond isolated resources to include whole courses or substantial course components, including assessments. The proposal was conceived as an education corollary to Plan S.

Plan E also suggests ‘a peer review system for educational materials to mirror that already used for research publications. Academic credit could then flow to those who publish and review educational resources and extend to other academic input such as updating the work and creating instructional materials’. This might help to remove the bias against teaching and towards research, found in many universities, and which is also a barrier to the adoption of open education.

Need for advocacy

Institutional and national barriers to open education will need to be removed if we are to make access to education truly equitable. In the final chapter of this book, you will see a call to action and a request to join an initiative that will think about how to transform the system and advocate for change.

There are a number of organisations advocating for increasing the use and development of openness in education. I would like to make a particular mention again of Open Education Global (n.d.): ‘We envision a world where everyone, everywhere has access to the high-quality education and training they desire; where education is seen as an essential, shared, and collaborative social good (What we do)’.

Limitations to the introduction of openness in higher education

This quote comes directly from my Plan E paper (Heller, 2023, p. 5):

Despite all the activities and enthusiasm in the field and the recognized benefits, neither the production nor use of open resources have been adopted by the majority of educators. There are various systemic and institutional barriers. Individual teachers may have concerns about quality, copyright, technical issues and sustainability, the lack of time to review and adapt open materials and the way that their work in developing open resources is valued and rewarded. Institutional inhibitory factors include funding, cultural/institutional norms and institutional policies. Institutional support is essential, but even where the policy settings have been changed to provide an appropriate framework for the development and utilization of open resources and shown to increase awareness among teaching staff, their use and creation may still be low.

Support for this caution comes from Swain and Pathak's (2024) systematic review: 'Though there are a lot of benefits of using OER in higher education proper institutional policy, financial support, basic knowledge of technology, lack of awareness and proper peer feedback, and lack of cooperation from institutions are the major constraints for the development of quality OER resources (Abstract)'.

Despite the case I am making here for openness, and the support from many points, major system change is required—but is going to be difficult, especially if change is to be made at scale. Transformation to a distributed approach will require a difficult interaction between the principles and practices of openness and the institutional, regulatory, and structural status quo. I return to getting started on transformation in Chapter 12, after a discussion on policy settings in Chapter 8.

Steps towards distributing knowledge for equity

- Open education is critical to the pursuit of equity in access to knowledge through the distribution of education and knowledge production without barriers.
- Open Educational Resources are teaching, learning, and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open licence.

- Open Educational Practices, a wide term including educational theory, infrastructure, collaboration, structures, and regulations, support Open Educational Resources being put into practice.
- Diamond Open Access education has been coined to resonate with Diamond Open Access publishing, as academic driven, locally owned, and free for both authors and readers, which can be a model for distributing education for equity.
- Advocacy is required to remove institutional and national barriers to open education to make education truly equitable at scale.

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PART D. INFRASTRUCTURE REQUIREMENTS

Introduction

This section of the book discusses the infrastructure requirement to distribute and create knowledge equitably. One of the major advantages of Open Educational Resources, in fact pretty much their main rationale, is to be able to share them once they are developed. In order to share them, we will require repositories and in order to be able to find the resources we may use, we will need to curate them in some way. Chapter 7 describes the importance of repositories for educational materials. It draws parallels with the way that research publications can be found. This includes the importance of giving creators and curators of educational resources academic credit for their work, much as is the case for creating and publishing research. Chapter 8 goes on to identify the importance of policies and licences. Policies at the institutional level, and beyond, are required to support the development and delivery of online, open and distributed models of education. Chapter 8 also highlights the importance of copyright and appropriate licences for open access publishing, and discusses the Creative Commons licensing system. Online education, open resources, and their sharing and delivery each require digital infrastructure. Chapter 9 discusses the role of educational technology and the industry behind it, where AI fits in, the importance of the digital divide, and the new iteration and promise of Web 3.0 and 4.0. It concludes with the observation that distributing rather than centralising education, research, and publication is consistent with these new and evolving technologies and the ways in which we communicate. The section concludes with Chapter 10 on capacity building. In order to realise the proposed transformation to a fully distributed version of higher education, appropriate capacity will have to be built among academic, administrative and design staff, as well as in the broader community.

7. Curated repositories for educational resources

Scientific journals and bibliographic indexes can be used to search for and find research publications of interest and relevance for the reader and other researchers—something similar is needed for educational resources.

Lists of scientific journals and the articles they contain are called bibliographic indexes. They may be organised by topic area, and allow the reader to identify articles of interest and relevance. There are various criteria for inclusion in these indexes, and journals often have to go through a rigorous process relating to their editorial policies to be eligible for inclusion. This is an area filled with controversy, as the number of times a journal and its articles are cited by other articles contribute towards its ‘impact factor’. Journals themselves can be ranked according to their impact factors, as can be academics according to the impact factor of the journals in which their articles are published. This process has been criticised as not relating to the scientific merit of the work itself and being subject to bias and manipulation (Wikipedia, 2026b).

Nevertheless, you can go to the various indexes to find articles of relevance to your own research or practice. While the indexes and the titles of the articles they identify may be open to view, the articles themselves may not be open for free access, as we have discussed.

This chapter discusses repositories and how they may be curated so that educational materials can be collated and identified, as for research publications. In the spirit of openness, the repositories should be open and the resources licensed for other educators to use or re-purpose.

Hellen Ndegwa and Iryna Kuchma (2024) introduce a special

collection of the journal *UKSG Insights*, ‘Repositories Transforming Scholarly Communication: An Insights Special Collection’, where they make the point that repositories are a form of open infrastructure and reproduce the figure below from the Global Sustainability Coalition for Open Science Services (SCOSS) (2024).

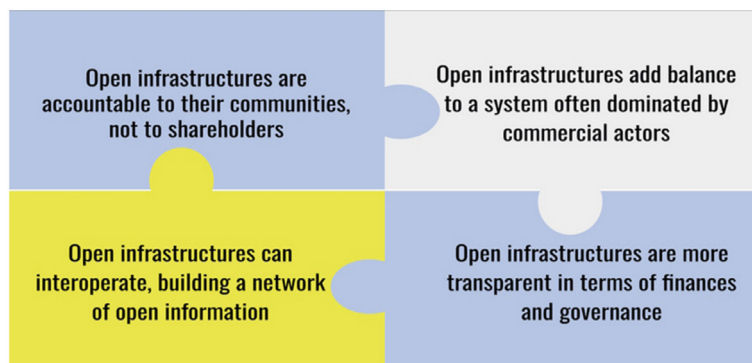


Fig. 7.1 The importance of supporting open infrastructures for scholarly communications. Global Sustainability Coalition for Open Science Services (SCOSS), 2024, CC BY 4.0.

Repositories: Some history

This section on some of the history of open educational repositories includes quotes from the article ‘Plan E for Education: Open Access to Educational Materials Created in Publicly Funded Universities’ (Heller, 2023), which is also part of the *Insights* special repositories collection.

As long ago as 2002, the Massachusetts Institute of Technology (MIT) published 50 of their courses freely online, now extended to all their courses. Exploring MIT Open Learning (n.d.) is a great way to see how far MIT have extended their pioneering work, including the use of an AI assistant to help you find courses. Others have followed the lead, and there are a number of repositories of open educational materials.

MERLOT (Multimedia Educational Resource for Learning and Online Teaching) is an international community of educators, learners and researchers offering free access to more than 99,000 curated online learning and support materials and content creation tools. It hosts more than 99,000 learning resources which have been curated and clearly documented, and there are more than 4,000 member institutions. With

leadership from the California State University in 1988, a number of institutional partners put up funding to support the infrastructure development, but funding for MERLOT now comes through competitive grant income and contracts for services to higher education institutions and commercial providers. Their website includes many examples of the benefits to learners and educators of being able to search for and freely access education, as well as the help given to educators to develop and present their materials in an open online format. Resources are catalogued by volunteer members, and MERLOT is now a grass roots organization with input from, and access by, a large community of individuals and organizations globally (Heller, 2023, p. 4).

In the UK, Jisc, previously known as the Joint Information Systems Committee, sponsored the UKOER programme in partnership with the Higher Education Academy from 2008 to 2012. A three-phase programme identified sustainable open practice and worked with many diverse stakeholders to explore the impact of OER and open educational practice on learning and teaching. Designed as a time-limited project to stimulate innovation in the higher education sector, a range of stakeholders benefited, including employers, public bodies, institutions, students, staff and resource developers. The evaluations of each of the phases of the UKOER can still be found and include general and specific recommendations, many of which are still relevant today. Jisc has evolved into a membership subscription service to deliver digital services for the higher (and further) education sectors in the UK. One of Jisc's services was Jorum, a large repository for discovering and sharing OERs, however this was retired in 2016. The UK does not seem to have followed these promising initiatives with the development of a national repository of open resources and practices (*ibid.*).

The UKOER programme also claims to have helped establish the use of Creative Commons (CC) licences in education, beyond their use in research publication—we return to licences in a later section of the book. As well as providing licences for open publishing of textbooks and other educational resources, Creative Commons has established the Open Education Platform as a space '[...] for open education advocates and practitioners to identify, plan and coordinate multi-national open education content, practices and policy activities to foster better sharing of knowledge'. There are currently more than 1,000 members from more than 90 countries functioning as a community group democratically run by members and open to anyone interested in open education. Content is shared, as well as opportunities and challenges through global discussions around open education topics. Community meetings and community-initiated activities, such as online talks, are hosted. Activities are determined by community vote each year and are

generally unfunded. The Platform is facilitated by staff of CC, whose primary source of funding is through foundation grants and individual donations. The Platform also provides access to a certificate programme for in-depth courses about CC licences and open practices, with over 1,000 graduates to date (*ibid.*, pp. 4–5).

Curating repositories

Having a repository is not of much value unless the repository and its contents can be found and that is where curation comes in. Wanda Marsolek and colleagues (2023) discuss a process of collaborative curating of research data, and find that surveyed researchers overwhelmingly agreed that curation added to the ability to share data. Their definition is useful, and although it relates to data curation, the principles can be applied to educational resources as well: ‘Data curation encompasses a range of actions undertaken to ensure that research data are fit for purpose and available for discovery and reuse, and can help to improve the likelihood that data is more FAIR (Findable, Accessible, Interoperable, and Reusable)’ (Abstract). My only criticism of this definition is that data are plural!

Wikipedia (2026a) reminds us that curation can be a noun—referring to a physical repository—or a verb, where it refers to selection and interpretation of the contents of a repository. The article also makes the point that the process of curation can also lead to an improvement in the quality of the data, and that is important that the system is set up to ensure preservation of the data.

I really like the reference to FAIR (Findable, Accessible, Interoperable, and Reusable), and recommend a look at the FAIR website (n.d.), which goes into more detail. While the principles were designed for scientific data management and stewardship, they could well be applied to educational resources. As we consider the application of the principles underlying research publication and data repositories to the field of educational resources, we will need to consider a number of other issues as well.

As I pointed out in my paper on Plan E, and in Chapter 6, we might consider a system that offered academic credit to those who publish and review educational materials, as is the case for research publications. This would imply a peer review process for educational materials as

for research publications. We would have to take care not to repeat the mistakes, outlined at the start of this chapter, of developing biased and manipulative ‘impact factor’-style metrics for educational resources. We should avoid anything that adds further administrative burdens for academic staff of universities and opens opportunities for added managerialism in their oversight.

The further development of repositories and their curation will be important to support open access as a key aspect of distributed education. We discuss repositories again as components of a distributed learning ecosystem in Chapter 9 on digital infrastructure.

Jason Potts and colleagues (2024) argue that open access to shared ‘data commons’ can generate benefits. They make an interesting point, however, that curating the data may inadvertently restrict access to information that might otherwise be found through AI software, since large language models will find both curated and uncurated items. This can work both ways—while the increasing reliance on AI tools may find more information, the non-curated information identified by large language models will miss the quality benefits of curation. One of the benefits of curation is the role in improving data quality in repositories through quality filters.

Case studies

Many varied repositories of educational resources exist today, although most are further examples of global inequity being based in, and reflecting resources from, the Global North. You might want to explore MERLOT (n.d.) mentioned above as a long-standing repository of educational resources; OpenDOAR (n.d.) is a global directory of open access repositories, and has inclusion criteria to ensure quality; and OER Commons (n.d.a), a public digital library of OER, hosts a curated collections site OER Commons (n.d.b) as well as having a search facility. OERSI (n.d.) ‘offers a central search entry point for educational resources from distributed national and international providers with numerous filter options (About)’.

Here is a great example of librarians getting together to provide an open repository of educational resources—mainly currently used for open textbooks:

The Open Educational Resources Collective (n.d.) is an initiative of the Council of Australasian University Librarians:

The Collective aims to:

- Build infrastructure and capacity, and achieve tangible outcomes to move the OER agenda forward at a national level.

- Facilitate collaborative authoring and publishing of OER in targeted priority disciplines, with a preference for the inclusion of local and/or Indigenous content.

- Allow Member institutions to publish their own OER in disciplines of their choosing.

The Collective provides a shared OER publishing platform for participating CAUL Member institutions in Australia and Aotearoa New Zealand, with the aim of facilitating independent publishing by authors at participating institutions, as well as collaborative, cross-institutional publishing. The Collective also builds community and capacity across CAUL Member institutions to support open education engagement.

And another, Canadian, example:

BCcampus (n.d.) provides a repository for sharing teaching and learning approaches for higher education in British Columbia, Canada. It actually goes beyond a repository of courses, textbooks, and Open Educational Resources, to offer various support and collaborative professional development opportunities in open education.

An example from Nigeria (WACREN, n.d.):

Nigeria's research and education landscape is taking a significant step forward with RUMBU—a national, multitenant institutional repository platform designed to strengthen open access and scholarly communication across the country's universities. RUMBU is a community-driven effort [...] From datasets and articles to preprints and grey literature, RUMBU will allow universities to store, manage, and share a wide variety of digital research assets within a shared, scalable, and open-source environment. By pooling resources through a multitenant model, each participating institution will benefit from its own space, branding, and autonomy—while still contributing to a collaborative national ecosystem. RUMBU will ensure that institutions, regardless of size or technical capacity, can participate in the open science movement without the heavy cost of standalone repository infrastructure. What makes RUMBU truly distinctive is its community-led governance model. There is a shared decision-making framework for participating institutions to shape how the platform evolves—ensuring that RUMBU reflects local needs while staying aligned with international best practices. This collaborative governance embodies the spirit of open infrastructure: transparent, inclusive, and locally owned.

Now for a cautionary tale demonstrating the fragility of initiatives that depend on grant funding.

Knowledge Commons, a network for knowledge creators which includes a valuable open repository KCWorks, announced (Fitzpatrick, 2024, para 1):

Knowledge Commons (KC) is delighted to announce that our repository, KCWorks has been selected as the designated public-access repository of the National Endowment for the Humanities (NEH). The partnership between KC and the NEH will fulfill the agency's commitment to making federally funded research freely available without delay as mandated by the White House Office of Science and Technology Policy in the 2022 Nelson Memorandum.

A later (April 2025) email message states (personal communication):

Over the last several weeks, we've seen colleagues of ours across the country posting about the direct impacts they're experiencing of the current attacks on the National Endowment for the Humanities, including sudden and extensive terminations of previously awarded grants. On April 2, 2025, we received notification that our NEH Infrastructure and Capacity Building Challenge Grant, awarded in 2020, was terminated effective immediately.

The Nelson Memorandum, which was to be a beacon of immediate open access to US federally funded research publication, is not available any more on the White House website and has been removed from some university websites where it was previously available (although archived copies do exist). The fate and implementation of this policy is uncertain as this chapter is written, given the cautionary tale from the Knowledge Commons and the removal of relevant websites. This story provides a fitting segue into the next chapter on policies and licences.

Steps towards distributing knowledge for equity

- Research publications can be found through bibliometric indexes—something similar is needed for educational materials.
- Repositories are the first step in making educational resources available.
- In the spirit of openness, the repositories should be freely available and the resources licensed for other educators to use or re-purpose.
- Curation is then required—which implies that the resources are fit for purpose and available for discovery and re-use.

- Repositories of educational resources already exist, and many include quality criteria, but they are fragmented and may not relate to each other. A global standardised search facility is needed.
- As for research publications, educational resources should be subjected to peer review and a reward system developed for review and publication.
- In order to increase equity in access and use of educational resources, the development of a common system of repositories and their curation should be developed.

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8. Policies and licences

This chapter discusses the role of educational policies to guide the development and delivery of education. It offers examples from viewpoints within the institution, education interest organisations beyond the individual institution, and the broader community. Three policy areas are explored—for digital infrastructure, for the development of Open Educational Resources, and for international student enrolment. The chapter then discusses the requirements for policies to have an evidence base. The chapter concludes with the importance of copyright and licences in relation to open access publishing.

Part I: Policies

At the end of the previous chapter we saw that the US Government had produced policy guidance which mandated that all publications arising from federally funded projects should be published immediately as open access, and also created opportunities for these to be made available through repositories. A wonderful policy, consistent with much of the content of this book. But we also saw that this policy might be under threat from a new government. This story is an example of government policy, but policies are developed at various levels, not just by governments.

As with all organisations, universities are governed by policies, so we need to explore how policy settings can enable the things we have been discussing in this book. Are there policies that can support an equity framework, the required digital infrastructure, open education and open publishing, and a distributed structure and leadership? A policy can be defined as ‘a law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions.

Policy decisions are frequently reflected in resource allocations' (CDC Polaris, 2024).

A UK study, summarised by Dale Munday (2025), makes the case for participatory, adaptive, and evidence-based approaches to ensure new policies work when implemented.

Institutional policies often emerge from a centralised, top-down approach, where senior leadership teams develop policies without adequate engagement with those directly affected (students, faculty, and professional service staff). This results in policies that may be well-intended but are disconnected from on-the-ground realities [...] The gap between policy intentions and practical implementation then leads to confusion, resistance, and limited adoption [...] Policies should not be dictated from the top—but rather co-created with those who will implement and be impacted by them. This requires institutions to foster genuine dialogue with diverse stakeholders, ensuring that different perspectives and experiences shape decision-making [...] By embedding participatory mechanisms and evidence-based strategies in governance, HE institutions can pave the way for a more inclusive and forward-thinking educational environment.

In the context of higher education, we can explore policies at three levels—the individual institution, education interest organisations beyond the individual institution, and the broader community including government. In Chapter 12, I explore the ways in which transforming the higher education system can be considered at each of these levels, but this chapter explores some of the policy settings that are relevant to the development of the components of the distributed university in its attempt to support knowledge equity. As this is such a potentially large topic, I have chosen three areas as illustrations: policies supporting a digital infrastructure, policies that enabled the development of Open Educational Resources, and how policies relating to international students impact equity. Part 1 of the chapter ends with a note about the feasibility of using evidence to inform policy.

Policies for digital infrastructure

Most of the ideas presented in this book require digital infrastructure, so relevant policies are required, especially to facilitate transformation to a digital future.

At the level of the institution

A review of published studies (Fernández et al, 2023) found that only 1 in 4 universities have a digital strategy, and that half have initiatives that are not integrated into a plan and do not offer strategic value to the organisation. A subsequent review (Singun, 2025) found a lack of cohesive vision and strategic planning, and an absence of clear institutional policies.

Education interest organisations beyond the institution

The OECD report (2019) *Going Digital: Shaping Policies, Improving Lives*, identifies seven policy dimensions for governments, citizens, firms, and stakeholders: access to communications infrastructures, services, and data; effective use of digital technologies and data; data-driven and digital innovation; good jobs for all; social prosperity and inclusion; trust in the digital age; market openness in digital business environments. Although the word university is nowhere to be seen in the body of the report, most of these seven areas are relevant to a distributed university model. Of special relevance is that the report mentions 'distributed' 8 times, and 'openness' 47 times.

The broader community

Vivek Kumar (2023) has identified the public policy requirements at the government level for digital transformation: 'At its core, digital transformation is a catalyst that can redefine government operations—from data collection and decision-making to service delivery and public engagement'. This will require a cultural change as well as a change in methods and the adoption of the technology itself. As Kumar says, 'Digital transformation in public policy is not merely a shift in tools or methodology. Instead, it represents a cultural change that pushes governments towards constant innovation and adaptation in response to rapid societal changes. This shift has its genesis in the marriage of advanced technologies, big data, and artificial intelligence, which are collectively transforming the traditional methodologies of policy-making'.

Tobias Mettler and colleagues (2024) describe government responses to the societal changes brought by information technology, using well

crafted policies to set legal boundaries. In their AI-aided analysis of many policy documents globally, they find a common repertoire and high similarity between policies for societal-level digital transformation.

Policies for the development of Open Educational Resources (OER)

The adoption of OER is central to the notion of equity of access to higher education. A story of their evolution can illustrate the role of higher education policy development, and this section of the chapter relies heavily on a paper where the history of OER is nicely described by T. J. Bliss and Marshall Smith (2017).

Rory McGreal, one of the leaders of the OER movement, with colleagues Fengchun Miao and Saanjeev Mishra, published this helpful definition (2016, p. 3):

Policy is related to the establishment of priorities for supporting the decisions made by an institution or organisation. Policies can serve administrative, financial, political or other goals. OER policies are generally those that support the assembly, use and reuse of OER in an institution or within a jurisdiction.

A UNESCO report (Jansen et al., 2023) sets policy development in the context of OER:

Open Educational Resources (OER) have the potential to help countries achieve the UNESCO SDG 4 goal: “Ensure inclusive and quality education for all and promote lifelong learning”. This potential value of OER is based on the central features of free (no-cost) access and rights to use, adapt, and distribute the educational materials.

At the level of the institution

In Chapter 7, I described how the Massachusetts Institute of Technology (MIT) led the move towards open access for educational resources. In 2001, MIT created a policy to put some of its courses online for anyone to access, and began implementing this in 2002 with financial support from the Hewlett and Mellon foundations. MIT later extended this to include all their courses as OpenCourseWare (MIT OCW)—with material from thousands of MIT courses, covering the entire MIT curriculum.

It is still in operation, and MIT Open Learning (n.d.) reports more than 300 million visits to their website and YouTube channel. Prior to that, California State University had created an online repository, MERLOT, for access to free online educational materials. David Wiley, at Utah State University, proposed a licence for free and open content as an alternative to full copyright, which you will see in Part 2 of this chapter. He has been a leader in the development of open access and his 5 R's of openness are described in Chapter 6 on open access. Richard Baraniuk at Rice University built Connexions, a web-based platform to develop and share global open-source educational content, particularly free textbooks. This has led to others contributing to an open textbook movement, saving students considerable amounts of money.

By 2022/3, a report by Seaman and Seaman (2023) found that nearly a third of all the academics surveyed required OER materials in at least one course, although by the next year this had declined by 3% (Seaman & Seaman, 2024). There are also a number of universities who contribute to the OERu (n.d.) where all materials are open and free to access. Each of these developments have been the result of policy decisions within the institution.

In *Adoption and Impact of OER in the Global South*, Cheryl Hodgkinson-Williams and Patricia Arinto (Hodgkinson-Williams & Arinto, 2017) focus on the role of OER in social inclusion—another way of talking about equity of access to educational resources. The report found:

In sum, while OER can help to address the problem of inadequate educational resources, access to OER in the Global South is constrained by lack of awareness and understanding of OER, poor connectivity and limited access to computers, and the unavailability of relevant and/or useable OER. Since access is a prerequisite for OER adoption, these factors also limit educators' and students' adaptation and creation of OER, activities which represent higher degrees of engagement with OER and, more generally, participation in knowledge production (p. 582).

The report identifies institutional policies which can influence the use of OER, and offer examples such as whether an institution has an Open Access policy to encourage educators to create, use, and share OER, policy guides to change from textbooks to open access textbooks or OER-based course materials, and policies which create incentives and rewards. In addition, whether the institution offers training and

administrative and technical support.

Individual enthusiasts and advocates, often with support from professional, intergovernmental, and non-governmental organisations have driven the movement forward, and other universities have adopted policies to allow the use of Open Educational Resources. A great example of the process of policy development for the development and use of OER in a campus of the University of the West Indies is offered by Rory McGreal and Leroy Hill (2025, p. 205):

Through a collaborative process involving faculty, staff, and students, a draft OER policy has been developed to address these issues and guide the university towards a more open educational ecosystem. Successful implementation of this policy has the potential to transform teaching and learning, empowering students and faculty while solidifying the university's reputation as a leader in higher education.

Education interest organisations beyond the institution

Adoption of OER was only feasible in the context of the development of the internet and in particular of movements towards Free and Open Source Software (FOSS) and open access to research publications, which were also growing at the same time. The adoption of OER is thus dependent on internet access, a point made above in the report on adoption of OER in the Global South (Hodgkinson-Williams & Arinto, 2017). Although education is not usually a policy driver of increasing internet access, open education is dependent on these policies.

Igor Lesko and colleagues (2023) describe the role of intergovernmental organisations, UNESCO (United Nations Educational, Scientific and Cultural Organization), the European Commission, OECD (Organisation for Economic Co-operation and Development), and the Commonwealth of Learning in the development of the Open Educational Resources movement. They also created a literature based classification of policy instruments to provide fine detail of how the development of a new form of education was supported.

UNESCO (n.d.) has played a large role in setting the development in a global context, and have hosted a number of world congresses and issued various policy declarations, such as the Paris OER Declaration in 2012 and the Ljubljana Action Plan in 2017, the 2019 Recommendation

on OER and the Dubai Declaration in 2024.

The Budapest Open Access Initiative in 2002 helped establish open access as a world-wide approach to sharing research, and funding agencies played a large role, in particular the Hewlett Foundation—who have continued to encourage further development, having provided many millions of dollars in grant support.

The broader community

National or regional government policy is important in setting the scene for institutions to follow. The OER Policy Register (OER World Map, n.d.) lists policies from all education sectors and levels, and is a rich source of information which you can easily access. National policies comprise the largest proportion (29%) of the policies listed in the policy register (institutional are second with 27%). In 2017, the National Universities Commission of Nigeria (n.d.) published a landmark national policy on OER:

This Policy provides guidelines for the creation and use of open educational resources (hereinafter referred to as OER) to increase access to and support quality teaching, learning and research incorporating entrepreneurial skills and employability competencies in the Nigerian Higher Education System. In doing so, the Policy seeks to strengthen commitment to OER by Higher Education Institutions and all concerned stakeholders. For the purposes of this Policy, higher education institutions shall include universities, polytechnics, monotechnics, colleges of education, innovation centres and research institutes as well as other institutions recognised under this category by the National Policy on Education (p. 31).

This has led to the creation of a repository with 2 million (and counting) open access resources being made available to Nigerian higher education institutions (National Universities Commission, n.d.).

Policies for international student enrolment

As background to this section, I draw on a paper I co-authored (Heller & Leeder, 2025), which demonstrates substantial variation between countries and regions in the rates at which students come to study

in Australian universities. The median rate per 100,000 population at which students were enrolled in Australian universities in 2022 was 42 from the Indian subcontinent, 29 from countries in the Pacific, 10 from China, 6 from SE Asia and 0.5 from Sub-Saharan Africa. Other than 6 countries with high GDP and high enrolment rates (as shown for three countries in South East Asia in the figure below), there was no relation to GDP, % of GDP on education, nor enrolment in tertiary education in these regions. The variation was even greater among individual countries within the regions.

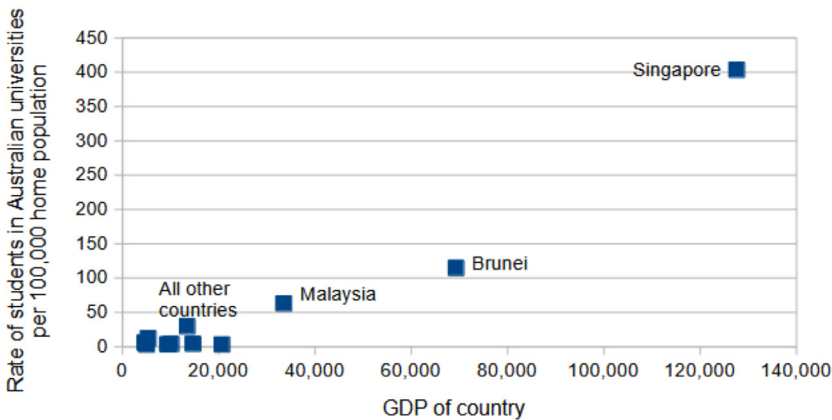


Fig. 8.1 International students from countries in SE Asia. Heller & Leeder, 2015, CC BY-ND.

As an example, again from SE Asia, Malaysia and Singapore together provided 47% of SE Asian international student numbers in Australia in 2022 but comprise only 6% of the total population of SE Asia. Indonesia provided 12% of SE Asian international student numbers in Australia but comprise 40% of SE Asia’s combined population.

The variation has no relation to educational or financial needs of the country. In fact, the only relationship was those 6 countries who had a high GDP and high rate of international students in Australian universities. The pattern of enrolments serves no obvious strategic purpose for Australia. Individual ability to pay fees appears to be the driving force, and universities attract who they can and who will pay fees.

At the level of the institution

In common with other countries, Australian universities have become financially dependent on the fees from international students. The fees are unashamedly used to cross subsidise the costs of research and education for Australian students (who also have to pay fees, but at a much lower level). Despite many attempts, I have found no interest among Australian universities in discussing the demonstrated inequity in international student enrolments.

Education interest organisations beyond the institution

I cannot easily separate policies within and beyond the institutional (university) level, as they each have the same purpose. However, a media release from the peak body representing Australian universities, Universities Australia (2025), said in response to a proposal to limit international student numbers:

International students contribute over \$50 billion to the economy and support more than 250,000 jobs across the country [...] International student fees help make up for the shortfall in government funding across research, teaching and infrastructure—with every dollar reinvested into the Australian university system (paras 3, 11).

Again, no mention of Australia's potential contribution to global knowledge equity.

The broader community

This situation is a direct result of government policy which requires an increasingly high proportion of Australians to attend university while reducing the proportion of the government expenditure required to run them. In a co-written paper taking a population perspective on equity and student enrolment, I wrote:

The Australian Government has expressed pride in the contribution of its universities to international education. The Australian Strategy for International Education 2021-2030 is completely focused on the economic benefits to Australia from bringing international students to Australia,

with no mention of the potential to reduce global inequalities in access to higher education. While Australia's SE Asia economic strategy does include a section on the importance of this education to the region, it mainly identifies the benefit of the education sector to Australia, calling it '...a national asset...'. The interim report of the Australian Parliamentary inquiry into international education offered a marketing strategy and discussed the need for a 'market diversification plan'. However, none of these reports suggests how global or regional needs might be partially or wholly met through university education in Australia. Equity is ignored in favour of income, and has no policy support [...] It is left to an international agency, UNESCO, to publish an equity based policy paper titled 'Equity should be at the heart of international higher education'. (Heller & Leeder, 2025, p. 2).

In this book about educational equity, I would like to make the case that a wealthy country like Australia should develop policy settings that relate to global inequity in access to higher education. Here is the concluding paragraph to our paper:

Australia should, at national, sector-wide and individual institutional levels, develop a clear strategy for international higher education students, based on reducing the global inequalities in access rather than solely on their economic value to Australia. This might include universities coming together, in partnership with those in low- to middle-income countries to create a network for global online learning, to help redress the current global inequity in access. In addition, Australia might take a leadership role in a global alliance of universities and others to support access to higher education for all individuals and populations who have the capacity for it (Heller & Leeder, 2025, p. 14).

Change will not be easy to achieve. My own proposal to reduce inequity by creating opportunities for online learning, as in the quote above, has received no traction, despite repeated efforts to seek support and publicise it—including a submission to the recent review of higher education in Australia, the Universities Accord.

Requirements for policies to have an evidence base

Collecting evidence on which to base policy is very difficult, but important. Although the Australian politician and currently a Government minister is a strong advocate of randomised controlled trials (Leigh, 2017), they are usually not a feasible way of evaluating large scale policies. Maarja Beerkens (2018) explores evidence-based policy in the realm of higher

education quality assurance, and her conclusions are broadly relevant. She makes the point that designed impact studies on policy instruments are usually impractical and unlikely to provide answer for better policies.

The phrase ‘evidence-based’ policy-making is increasingly replaced by ‘evidence-informed’ policy-making, realizing the importance of practical (professional) and political knowledge next to scientific knowledge for making policy decisions. Experience with evidence-based policy-making thus calls for a broader look at what constitutes evidence and how evidence contributes to the policy process [...] (Beerkens, 2018, p. 273).

An OECD report, *Education Policy Evaluation—Surveying the OECD Landscape* (Golden, 2020) surveys the landscape of education policy evaluations across OECD countries and proposes a supporting framework for education policy evaluation that integrates institutional factors which can help to build robust underpinnings for policy evaluation. The report summary states:

There is an imperative on education systems to design and implement policies according to the best available evidence on value and efficacy. To do this, education systems need to build a stronger culture of policy evaluation [...] however, definitions, concepts and practices are varied, and there is not yet a systematic strategy for institutionalising or improving education policy evaluation practices in most OECD education systems (p. 5).

Christoph Thiedig and Antje Wegner’s review (2024) of 77 studies on evidence used in higher education published in English or German included only 15 (19%) which studied evidence use in policy at national, state, or provincial levels—the others being at the level of individual institutions. Although the number of studies had increased over time between 2010 and 2022, few were of high quality. Studies were dominated by authors from the USA, and consistent with the OECD report, included different measures and dimensions of evidence use.

The only way to develop an evidence base is to make sure policies are evaluated—lessons can be learned so that policies can be adapted, and new policy development informed. Even where randomised controlled trials are not feasible, there are plenty of other ways to evaluate policy implementation. Celia Jacobs (2000) published 10 stages in evaluating educational interventions, going from locating the intervention within the context and policy framework, to disseminating the findings. Deciding on the evaluation methods is only one of the stages, number 7. Erna

Engelbrecht and colleagues (2024) also emphasise the importance of an evaluation approach that is applicable to different contexts, and which includes the components of value, methods, and use. Ashton Maherry (n.d.), for OER Africa, has described the importance of evaluating the implementation of Open Educational Resources (OER) and identifies a number of indicators that can be used to assess the impact of openness.

I have previously made a case (Heller, 2024) to use the principles of evidence-based medicine to inform policy evaluations, and include it here as the framework is highly consistent with the two references quoted above. The figure below comes from that paper and offers a framework which includes the practical steps for the evaluation, and the constructs which underlie an evaluation. These constructs are more than the research methods used in an evaluation (randomised controlled trials or alternatives). Three practical steps—define the purpose, measure process and outcome, and learn from the evaluation—are depicted as ellipses in the foreground. Constructs underpinning these steps—theory and methods, joined by an understanding of values, the dynamics of complexity, reflection and communication of the evaluation results—are depicted as circles in the background. The context of the evaluation overlays each of the methods and practical steps.

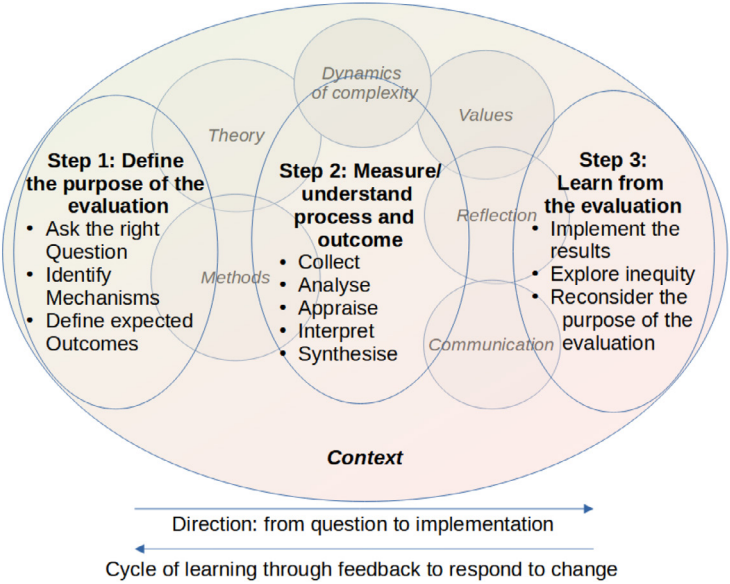


Fig. 8.2 A framework for performing and appraising evaluations. Heller, 2024, CC BY 4.0.

You will see this diagram re-configured in Chapter 12 as a framework for transformation.

Part 2: Licences and copyright for open access

The principles and practice of distributed education require the use of open access to resources—which requires consideration of copyright. This was realised early on in the evolution of the use of Open Educational Resources, as discussed in Chapter 6. There are two main areas for us to consider.

The importance of fair use

To advise educators, librarians, and authors on copyright and OER, the publication *Code of Best Practices in Fair Use for Open Educational Resources* (2021) tells us:

The good news for OER is that intellectual property law, and copyright in particular, operate as less of a meaningful constraint on otherwise sound pedagogical practice than is generally understood.

The code advises courses to include this statement as a signal:

Unless otherwise indicated, third-party texts, images, and other materials quoted in these materials are included on the basis of fair use as described in the Code of Best Practices for Fair Use in Open Education.

The blog-post ‘Copyright Compliance for Open Educational Resources (OER) Explained’ (Sumner, 2025) provides an accessible overview of how fair use can apply in educational contexts. While it offers practical examples, it is important to note that fair use law does not rely on fixed percentage limits; instead, it requires consideration of the four statutory factors, as outlined in the Code of Best Practices including purpose, amount used, and market impact.

Open content licences

Creative Commons are the most used of a variety of open content licences (Creative Commons, n.d.) that allow works under copyright to be used free of charge. They are mentioned in various parts of this book and offer everyone a standardised way to grant permission for the use of their work. They provide permission for the use of resources according to various

criteria. There are 6 licences, and a public domain dedication tool, varying in permissiveness and identify what a user can do with the work. The CC license options are listed here—from most to least permissive.

Key to the elements of the licence:

- CC: Creative Commons
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Steps towards distributing knowledge for equity

- We need to consider how to ensure that policy settings enable the open distribution of knowledge for equity.
- We can consider these policy settings at three levels—the individual institution, education interest organisations beyond the individual institution, and the broader community including government.
- Transformation to a digital infrastructure, development of Open Educational Resources (OER), and international student enrolment provide three examples where policy development can support knowledge equity.
- An evidence-based approach is required to guide policy, and depends on appropriate evaluation of educational innovations.
- Open content should be published using an appropriate and standardised licence, of which Creative Commons licences are the most used.

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9. Digital infrastructure

This chapter covers the digital transformation of higher education, the role of educational technology and the industry behind it, where AI fits in, the importance of the digital divide, and the new iteration and promise of the decentralised Web 3.0 and federated infrastructures. It concludes with the observation that distributing rather than centralising education, research, and publication is consistent with and facilitated by these new and evolving technologies and ways in which we communicate.

There is a digital transformation happening throughout society, and education is no different. If you are accessing this book on distributing learning online, you are taking part in this transformation. The advent of the internet allowed distance learning, already used to bring education to those unable to travel to a point of delivery, to evolve into online learning. Thirty years ago, a perceptive paper by Chris Dede (1996) speculated how emerging technologies might reshape both face to face and distance education.

The digital transformation of higher education, accelerated by the Covid pandemic, is well under way. As Upasana Singh and colleagues (2023, para 2) state: 'Digital teaching and learning has shifted from just an option [...] to a development where education revolves around the delivery primarily on a digital platform'.

In 'From the Margins to the Mainstream: The Online Learning Rethink and its Implications for Enhancing Student Equity', Cathy Stone (2022) focuses on equity:

From being largely at the margins of higher education for many years, online learning now finds itself in the mainstream [...] Evidence tells us that online learning plays a significant role in enhancing student equity,

widening higher education access and participation for many students who would have found it difficult, if not impossible, to attend university on campus (Abstract).

While the advent of online teaching can be seen as a threat to traditional university teaching, it offers wonderful opportunities for the key notions of distributing education widely—the central theme of this book. However, as I discuss below, there are dangers in the uncritical adoption of technology in education.

There are multiple digital technologies in use and under development for educational purposes. These include various learning management systems where the educational resources are posted and discussions assessments and assignments hosted. Tools for communication including social media are critical, and gaming, simulations and virtual reality experiences are becoming common. Artificial intelligence (AI) options are both a threat and an opportunity.

As well as allowing for the wide distribution of learning, there are many educational advantages of online education. The graphic below, from Abid Haleem and colleagues (2022), shows some of the features of the digital classroom.

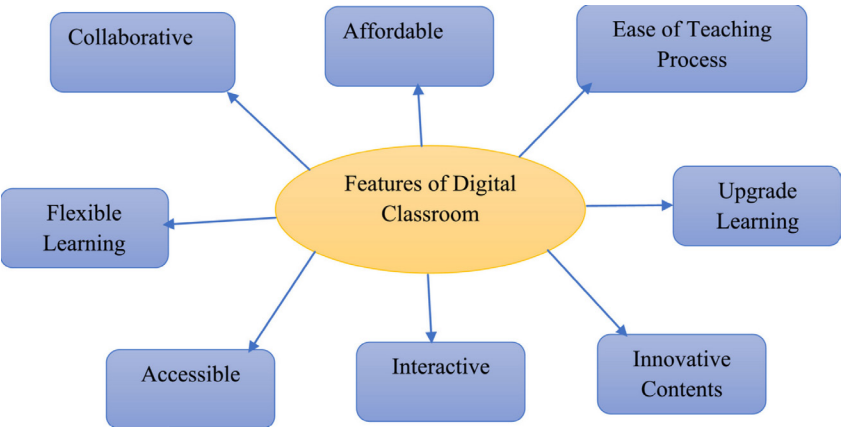


Fig. 9.1 Features of digital classroom. Haleem et al., 2022, CC BY 4.0.

Technology in education goes beyond the physical classroom. As the UNESCO report (Amiel, 2024), previously quoted in Chapter 6, states: ‘Digital platforms are not simply tools at the service of teachers and students; they play a far more pivotal role in educational governance’. A

similar concept is articulated by Mamdouh Alenezi (2023), who makes the point that as higher education institutions themselves undergo digital transformation, digital learning is now part of the ecosystem of modern higher education.

In their introductory chapter to the book *Distributed Learning Ecosystems*, Daniel Otto and Michael Kerres (2023) have described the concept of distributed learning ecosystems as an integrated approach that enables learners to access and use learning content and share resources. This builds on the internet being the emerging space where learning takes place. The figure from their chapter shows the potential for individual open repositories to exchange with each other, to contribute to a distributed learning ecosystem.

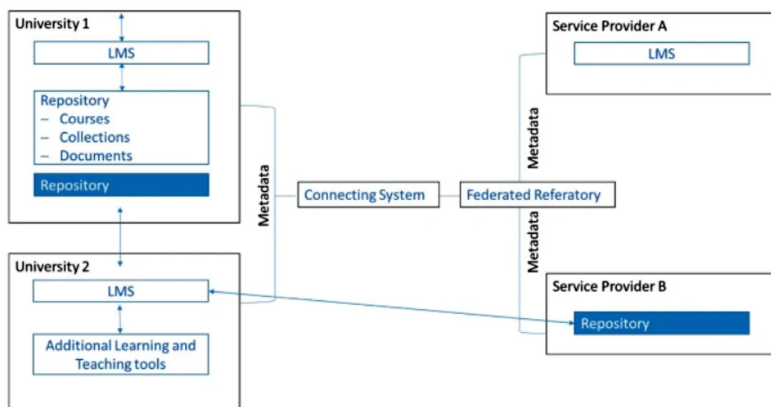


Fig. 9.2 The distributed learning ecosystem. Otto & Kerres, 2023, CC BY 4.0.

Let's not forget another of the main advantages of digital learning—as mentioned in Chapter 1, online education has a much lower carbon footprint than face-to-face teaching. Sara Becker and Daniel Otto (2019) suggest:

Digital learning [...] saves resources and CO₂ emissions, thus contributing to the protection of the climate [...] it democratizes the educational sector by making learning resources more easily accessible to learners all over the world; it helps to connect people from different cultures by allowing for intercultural exchange among students without additional travelling [...] it facilitates a self-regulated learner-centered style of learning that is well-suited to empower learners to become agents of a sustainable development.

Educational technology

Educational technology (or Edutech or EdTech) can be defined as ‘the combined use of computer hardware, softwares and educational theory and practice to facilitate learning. When referred to with its abbreviation, EdTech, it often refers to the industry of companies that create educational technology’ (Wikipedia, 2026a, para 1). These companies are privately owned and create profits not only from the sale of their products, but from the sale of the data derived from the students and their educational journey. The potential for the commodification of education in this way is confirmed by authors from McKinsey and Company (Diaz-Infante et al., n.d.): ‘US venture funding for education technology (edtech) grew from \$1 billion to \$8 billion between 2017 and 2021’. The same post offers advice to readers: ‘Growing competition in online education suggests providers may need to take bold action. Five strategic moves could help them compete and grow while meeting the needs of learners’.

The dangers of relying on the EdTech industry are illustrated nicely by Bruce Arnold (2022, p. 70):

Universities in the Global North are embracing digital platforms as the basis for the delivery of content, assessment of proficiencies and cost reduction. Those platforms are surveillance machines, a manifestation of surveillance capitalism. They abstract students and academics alike, embodying a politics in which people are addressed as digital artefacts—instances of when, what and how they have interacted online rather than being respected as people who are more than a data point on an educational social graph.

It may be even worse! Eamon Costello and Stephen Gow (2025) argue that previous models of digital education are being replaced by authoritarian EdTech which is increasingly centralised, less open, and more powerful.

Luckily, there are many other players in this area, such as OpenEdTech (n.d.) who want to bring trust to educational technology:

Too much of the software being marketed for education is designed by startups and Big Tech whose main purpose is to maximise profits for investors, which leads to proprietary subscription platforms designed around trapping your data and centralised products that ignore local cultural differences. When investors become unhappy these products can simply disappear. These are not ideal for designing our education system (para 1).

The ‘datafication’ of universities themselves has also been noted by Jana Komljenovic and colleagues (2025): ‘Universities recognise the potential value of their digital data and strive to become data-driven organisations that collect, analyse, structure, manage, and use data and data products in their strategic and operational activities’. These functions may be conducted internally or outsourced to EdTech companies. In either case, this might be considered as part of the commercialisation of higher education that takes the sector away from its intended function of meeting the educational needs of society.

Shandell Houlden and George Veletsianos (2023) caution: ‘Policymakers and educators should consider technology as one part of a toolkit of responses for making informed decisions about what technologies align with more equitable and just education futures’ and ‘[...] a reminder that the future of education is about healthy social connection and social justice’.

The role of AI (Artificial Intelligence)

The impact of AI on higher education is a large topic, and has special relevance to a discussion of digital infrastructure and online learning. A systematic review of published research into the use of AI in online and distance education (Dogan et al., 2023), identifies three main themes: ‘(1) how AI technologies are used in online teaching and learning processes, (2) how algorithms are used for the recognition, identification, and prediction of students’ behaviors, and (3) adaptive and personalized learning empowered through artificial intelligence technologies’ (p. 1). The authors conclude: ‘developing policies and strategies is a high priority for educational institutions to better benefit from artificial intelligence technologies and design human-centered online learning processes’ (p. 10).

More detail is given in the editorial to introduce a special issue of the *International Review of Research in Open and Distributed Learning* by Ehsan Namaziandost and Afsheen Rezai (2024, p. 1):

Artificial intelligence (AI) is a rapidly evolving field with the potential to revolutionize various aspects of education, especially in open and distributed learning, including distance education, hybrid learning, and blended learning. AI can transform curriculum design, content delivery, assessment, feedback, learner support, and learning analytics. AI offers

personalized and adaptive learning paths based on learners' preferences, needs, goals, and performance, enhancing their educational experience. It also provides timely feedback and guidance, fostering engagement and motivation. AI creates interactive and immersive learning environments, such as games, simulations, and virtual reality, sparking learners' interest and involvement. It promotes social and collaborative learning by facilitating communication and cooperation among learners, instructors, and resources.

David Wiley (2024), in an excellent YouTube presentation, argues that 'generative AI is, or soon will be, a more effective tool for increasing access to educational opportunities than OER'. This is a long presentation but you can navigate to the parts that interest you!

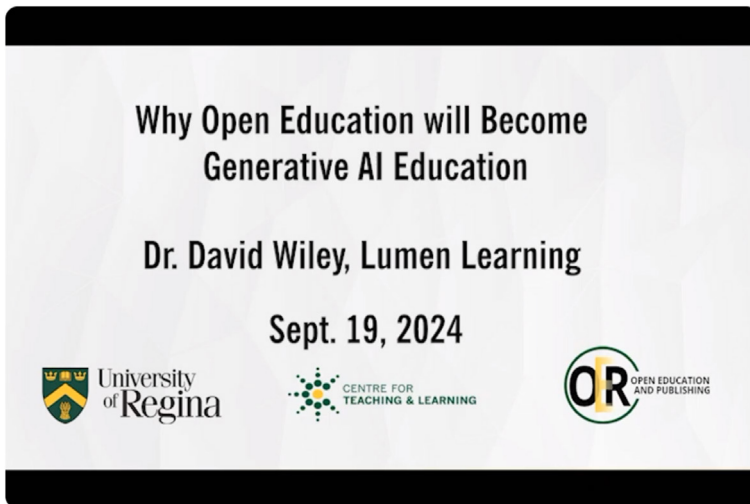


Fig. 9.3 Why Open Education Will Become Generative AI Education. Slide 1. Wiley, 2024, CC BY-SA.

An article in the *Conversation* by Patrick Dodd (2024) builds on this concept. He makes the point that as knowledge is more readily available, accelerated by the AI revolution, universities will have to shift what they offer. No point repeating information that is already being accessed or creating courses aimed towards jobs which will be replaced by AI. He suggests:

[...] scarce resources [be used to] shift from information itself to what machines still struggle to copy: focused attention, sound judgement, strong ethics, creativity and collaboration. I group these human complements under what I call the C.R.E.A.T.E.R. framework:

critical thinking – asking smart questions and spotting weak arguments
 resilience and adaptability – staying steady when everything changes
 emotional intelligence – understanding people and leading with empathy
 accountability and ethics – taking responsibility for difficult calls
 teamwork and collaboration – working well with people who think differently
 entrepreneurial creativity – seeing gaps and building new solutions
 reflection and lifelong learning – staying curious and ready to grow.

Geographical bias and AI

This blog by Antonia Abraham and Janine Arantes (2024) identifies one of the major biases of AI—that it only sweeps up information that is available:

Because artificial intelligence (AI) is trained on publicly available data, there are not enough Africans generating enough data to reduce bias. Consequently, there is a resounding amount of bias towards the African population specifically in access, use, and results of using these technologies.

Compounding the poor representation of Africans on the global stage is their relative lack of internet access, as further discussed below in the section on the digital divide.

AI and openness

Martin Dougiamas (the founder of the open-source Moodle learning management system) suggests that AI will be the primary creator of educational content in the future, and asks for ways in which the Open Educational Resource community can come together to create an OER dataset for AI (Dougiamas, 2024).

Public AI (Open Future, n.d.) is an initiative which:

[...] explores how AI technologies can be built and governed as public infrastructure. Today, concentrations of power in AI pose a challenge to public interest, as they make a broad range of activities dependent on a narrow group of monopolists. Our work concerns alternative, public AI systems and applications that can help address this challenge of concentrations of power in AI. We aim to demonstrate how more democratic, public interest oriented and purposeful systems can be designed, based on public AI principles and governance models.

Distributed AI

In line with the theme of distributing education through IT, let's consider a distributed AI model. Paul Stacey (2025), in his blog on 'The Tragedy of AI (and What to Do about It)' says that 'There are opportunities to create not just Large Language Models but smaller more customized openly licensed data sets for various academic domains using open science and open education sources'. The biases pointed out by Stacey, and mentioned in Chapter 2 on distributing knowledge creation, will apply to large language models which have been criticised as being dominated by information from the Global North and in the English language. This is not surprising as they just Hoover up any available information. The idea of distributed and open AI datasets has the attraction of being able to be customised to include data sources and languages that are fit for purpose.

Other examples of distributed AI include global initiatives to create local instances of AI, independent of the large providers: 'Around the world, the push to shrink massive language models into deployable, localized tools has become a strategic priority, whether to reduce energy costs, mitigate cloud dependency, or bring AI to underserved populations' (Guest Writer, 2025, para 2).

Personal or personalised?

The literature about AI is full of the idea of its role in developing personalised learning, so at this juncture we should pause and assess the potential of personalised learning. Stephen Downes has been very vocal in making us reflect on the difference between 'personal' and 'personalised', and summarises this in his slide. He prefers the personal to the personalised (Slide 7).

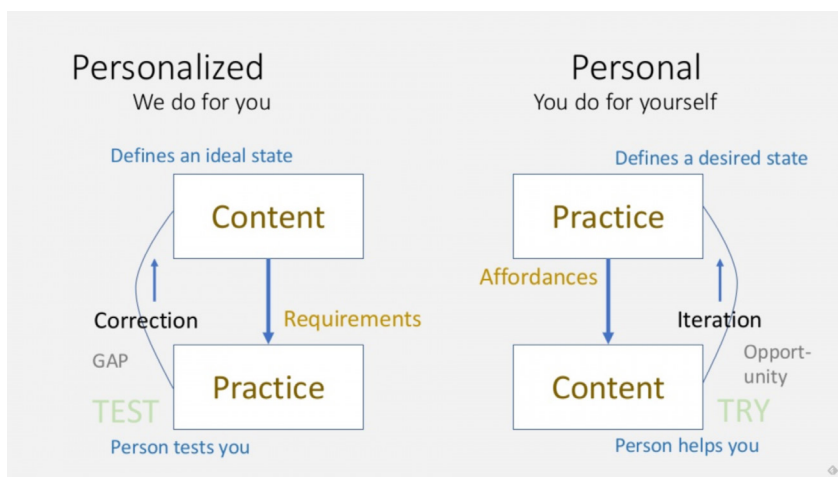


Fig. 9.4 Personal Learning vs Personalised Learning. Downes, 2018, CC BY-NC-SA.

Some words of caution on AI

Stacey's (2025) blog, mentioned above, is worth detailed examination for its warnings—yet possible solutions. His viewpoint resonates with that of George Veletsainos (2024):

Every few years, an emerging technology shows up at the doorstep of schools and universities promising to transform education. The most recent? Technologies and apps that include or are powered by generative artificial intelligence, also known as GenAI. As optimistic as these visions of the future may be, the realities of educational technology over the past few decades have not lived up to their promises (para 1).

In 'On the Limits of Artificial Intelligence (AI) in Education', Neil Selwyn (2024) also issues 'a call for slowing down and recalibrating current discussions around AI and education—paying more attention to issues of power, resistance and the possibility of re-imagining education AI along more equitable and educationally beneficial lines'.

Joshua Thorpe (2023), an educational developer, in his blog-post 'The Real Risk of Generative AI is a Crisis of Knowledge', is:

[...] worried about how artificial intelligence might affect students' motivation, sense of identity, and intuition around knowledge production and consumption (para 1) and [...] let's leverage the embedded criticality

in our higher education culture to promote a more humane world, even in the flood of new technologies that challenge equality, humanity, identity, knowledge, and the future of learning.

The need to address climate change is a recurring theme in various parts of this book, so let us not forget the heavy carbon footprint of AI. A beautiful artform by Kate Crawford and Vladan Joler (2018) outlines an anatomical map of the human labour, data, and planetary resources used in one AI system.

Nevertheless, it seems inevitable that explorations of the role of AI in distributing education will expand rather than slow down, and that there is considerable scope for a major contribution, even revolution. In any case, there will be a need to update what I have written here as this rapidly evolving field develops and grows over time.

Digital equity and the digital divide

The need for an understanding of the concerns, as well as the benefits, relating to the move towards online learning are captured by Shelly Ikebuchi (2023) analysing a Canadian Digital Learning Research Association survey which found, in relation to equity, diversity, and inclusion (EDI):

(a) online and hybrid learning presents challenges of access for students marginalized by 'race,' class, and location; (b) online and hybrid learning supports EDI by increasing access and flexibility; (c) pedagogy and course design are central to ensuring that online and/or hybrid learning supports EDI; and (d) student experiences and expectations around online learning indicate a need for support and flexibility.

An editorial to introduce a special issue of the *Australasian Journal of Educational Technology* (Willems et al., 2019) summarises the concern clearly:

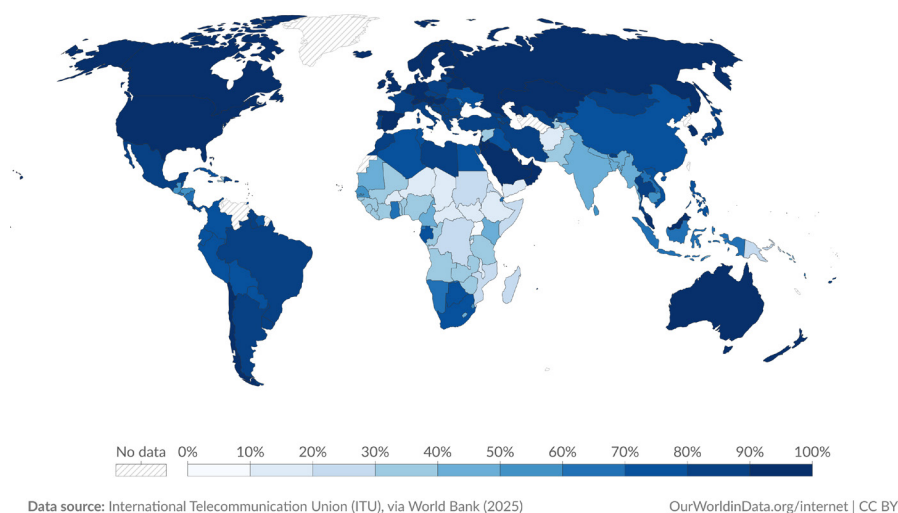
Digital equity is a complex and multifaceted concept. It includes not only access to hardware, software, and connectivity to the Internet but also meaningful, high-quality, and culturally relevant content in local languages, and the ability to create, share, and exchange knowledge. Participatory citizenship in the digital era involves the right to access and participate in higher education. Indeed, it is a key civil rights issue of the modern world.

The need for digital agency (allowing people to engage with technology in a meaningful way) has been identified by Don Passey and colleagues

(2018) as a major issue influencing the future of equity in education. It has three components—digital competence, digital confidence, and digital accountability, and requires attention from policy makers, practitioners, developers, and researchers.

As I mentioned earlier, there are many inequities in access to higher education. As we move to the online mode it may be that, despite our efforts to reduce these inequities through distributing education online, the digital divide might introduce its own inequity. This can apply to those who are not enabled to get into universities, to students once they have entered their studies and also to the teachers themselves.

The map below, from Ritchie and colleagues (2023) shows the proportion of the population using the internet in 2022. There are global inequities, and of course regional, socio-economic, gender, and age differences in access within countries.



1. Internet user The International Telecommunication Union defines an Internet user as anyone who has accessed the Internet from any location in the last three months. This can be from any type of device, including a computer, mobile phone, personal digital assistant, games machine, digital TV, and other technological devices.

Fig. 9.5 Share of the population who used the internet in the last three months, 2023. Ritchie et al. (2023), CC BY 4.0.

Just access to the internet does not imply that this is translated to equitable use in the higher education setting. A study from Malaysia by

Latha Subramaniam and colleagues (2024, p. 197) commented that the digital divide persists among Malaysian university students and:

[...] extends far beyond mere accessibility to physical technologies such as devices and the Internet. The digital divide is also characterized by differences in motivation and attitudes towards technology, disparities in the acquisition of digital skills, levels of engagement in online activities, and, ultimately, inequalities in the outcomes achieved by individuals.

The same issues may apply to the teachers. A study in Pakistan (Soomro, et al., 2020) identified a persistent digital divide among university faculty at four levels: motivational, physical, skills, and usage.

Policy makers at the national and institutional levels will need to take account of these issues. A survey of higher education leaders in 24 countries explored the question 'Digital higher education: a divider or bridge builder? Leadership perspectives on edtech in a COVID-19 reality' (Laufer et al., 2021). In relation to institutional ability to realise the potential of digital education, they emphasised the importance of collaboration:

Higher education leaders, especially those working in well-funded institutions, are uniquely positioned to spearhead collaborations in the digital sphere and build bridges across the gulfs of inequalities: by sharing their resources with other individuals and institutions, pushing the rhetoric about collaboration over individual gain, and creating awareness both internally and externally of hidden inequalities that can be tackled using digital technologies (p. 15).

Despite the presence of digital inequity, access to the internet is increasing rapidly globally. Given this increase, and the efforts the sector can make to reduce the impact of inequity, the current digital divide should not be used as a reason to deny the benefits of online learning. As time goes on, distributing education online is likely to offer the key to reducing global inequity in access to higher education.

Federated infrastructures and the decentralised web

The distributed model, which underpins the transformations outlined in this book, is consistent with societal moves towards decentralisation of the internet. Decentralisation, giving greater control and ownership to

users themselves, is a key component of the development of the internet towards Web 3.0 (Wikipedia, 2026b). Decentralisation is also key to Web 4.0, often characterised as an 'intelligent internet' in which AI systems are deeply integrated into online services and interactions (Rafalski, 2025).

Sir Tim Berners-Lee has become an advocate and activist for the decentralisation of the web that he invented (Berners-Lee, 2025):

Today, I look at my invention and I am forced to ask: is the web still free today? No, not all of it. We see a handful of large platforms harvesting users' private data to share with commercial brokers or even repressive governments. We see ubiquitous algorithms that are addictive by design and damaging to our teenagers' mental health. Trading personal data for use certainly does not fit with my vision for a free web (para 5).

I gave the world wide web away for free because I thought that it would only work if it worked for everyone. Today, I believe that to be truer than ever. Regulation and global governance are technically feasible, but reliant on political willpower. If we are able to muster it, we have the chance to restore the web as a tool for collaboration, creativity and compassion across cultural borders. We can re-empower individuals, and take the web back. It's not too late (para 13).

Berners-Lee's solution is decentralise the web and give power back to the individual. He invented the decentralised software Solid to allow people to take control over their own data (n.d.):

When I invented the World Wide Web, I envisioned technology that would empower people and enable collaboration. Somewhere along the way, we lost that human-first approach; today's web often prioritises profits over people. Solid returns the web to its roots by giving everyone direct control over their own data (para 1).

Consistent with this are ways of searching on the decentralised web, such as the ESPRESSO framework to 'facilitate this new paradigm of large-scale searches within personal data stores while respecting the individual pod owners' data access governance' (Ragab et al., 2024).

Decentralisation leads to federated IT infrastructures. The following definition from the commercial sector (XYTE, n.d.) offers a clear explanation of how such infrastructures operate:

A fully federated architecture creates a network of independent systems that can still work together. Each system, like a company department, controls its own data and functions, but they can all share information

securely following agreed-upon rules. This allows for collaboration without relinquishing control, making it useful for complex organizations with separate needs (para 1).

As a reaction to the domination and manipulation of the social media giants, the Fediverse has been developed to decentralise social networks (Dans, 2023). Each local server sets its own rules and allows for information to flow between each other; for further information, watch the video introducing the Fediverse by Elena Rossini (2025), hosted on the federated PeerTube.

Bonfire Networks (n.d.) provide an example of an open social web connecting with the wider Fediverse '[...] trusted communities with real autonomy and participatory governance, interconnected across the open web. It empowers communities to shape digital spaces that reflect shared values, like autonomy, mutual care, and collective power'. Bonfire collaborates with the Open Science Network (n.d.), federated digital spaces providing an open, community-owned and interconnected scholarly communication system which does not rely on corporate platforms risking loss of control of their own work and community.

Federated learning has been coined to describe how the model training in generative AI can utilise distributed not centralised data (Yurden et al., 2024). Where AI is used to support education, as in identifying needs and relevant resources for personalised learning, a federated version of AI may be particularly relevant and can preserve privacy by avoiding the centralisation of data (Sengupta et al., 2024).

The German government has declared its intention (Degen et al., 2025) to establish a national digital education ecosystem to fast-track the digital transformation in the education sector, involving a federated IT infrastructure. This is described in more detail (Knoth et al., 2022, pp. 369–370):

Digitalization is changing IT infrastructures and thus access to and participation in education just as fundamentally as it is changing the structures of the education system itself [...] A federated IT system in which the need for a central, potentially superordinating structure is reduced to a minimum through mutual trust between different components [...] to interlink existing and new digital education platforms into a nationwide (and European-connectable) federated infrastructure. An ecosystem of mutually independent education services will be created that will offer users support on their path through the educational sectors.

Mike Masnick (2025) goes further in his blog-post ‘Take Back Our Digital Infrastructure to Save Democracy’:

Yes, decentralization creates challenges—technical complexity, potential for abuse, fragmentation. But these aren’t arguments against decentralization; they’re arguments for designing it thoughtfully. Democratic institutions have always grappled with similar tensions between distributed power and effective governance. The solution isn’t to abandon democratic principles but to architect systems that embody them while addressing their practical challenges.

The same principle applies to digital infrastructure. Tradeoffs exist, but they don’t justify accepting concentrated control any more than political tradeoffs justify accepting authoritarianism. We can build decentralized systems that address concerns about complexity and abuse without centralizing power in the hands of corporate oligarchs.

This resonates with the higher education sector. The central notion of this book, of distributing rather than centralising education, research, and publication is consistent with these new and evolving technologies and ways in which we communicate. Using the decentralised and distributed model as a basis for how to transform higher education will encourage new locally driven academic environments and research initiatives which are responsive to societal needs and work towards knowledge equity.

Steps towards distributing knowledge for equity

- Digital teaching and learning are now core to higher education and need to be embraced.
- Educational technology, as well as delivering content, can act as a surveillance mechanism, the dangers of which the higher education sector should be aware and avoid.
- AI has the potential to revolutionise education, as knowledge is now readily available, and the higher education sector needs to shift its own offerings.
- As for educational technology, AI is provided by centralised commercial organisations, and decentralised distributed local initiatives should be developed as replacements.
- While digital infrastructure can reduce inequity by supporting

online education, care should be taken that its access and use do not introduce new inequities.

- Federated infrastructures and the decentralised internet are social movements that can be adopted by the higher education sector to decentralise and distribute education for knowledge equity.

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10. Capacity building

In order to realise the proposed transformation to a distributed version of higher education, appropriate capacity will have to be built among academic, administrative, and design staff, as well as in the broader community.

A United Nations website (Academic Impact, n.d.) offers a useful definition which sets capacity building in the context of transformation (a topic to which we will return in Part E of this book):

Capacity-building is defined as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world. An essential ingredient in capacity-building is transformation that is generated and sustained over time from within; transformation of this kind goes beyond performing tasks to changing mindsets and attitudes (para 1).

It goes on to discuss the importance of higher education in capacity building: ‘Universities in particular can serve as centers of capacity-building through research, innovation and data collection and analysis’ (para 1).

This chapter focuses on the need for universities to develop the capacity for digital education within themselves, as well as outside the higher education sector, in order to underpin the transformation towards a distributed version of higher education.

A whole issue of *Open Learning: the Journal of Open, Distance, and e-learning* is devoted to capacity building for digital education, highly relevant to the topic of this book (Whitelock et al., 2024). It has a focus on the contributions that the UK Open University have made and mentions the need to start with a vision which:

[...] involves the scaling up of provision for digital education in an institution, region, or country [...] However, changes to technology and pedagogy cannot produce long-term change by themselves. Change involves many communities—learners, educators, support staff, managers, and the wider community. From the perspective of capacity building, support staff, educators and managers all need support to engage successfully with the project and, ideally, will have been engaged in contributing to the vision. Part of the capacity building project needs to consider the practicalities of the context—from national policies related to infrastructure, funding, and educational aspirations, to the day-to-day practicalities of maintaining technology, and timetabling access to resources [...] When capacity building is approached in terms of the local, national, or global public good then its conception and performance will be interwoven with aspirations for addressing societal challenges and achieving sustainable development (p. 106).

Capacity building within the higher education sector

There have been a number of efforts to adapt to a changing university environment, building capacity for digital education as described in the editorial quoted above by Denise Whitelock and colleagues (2024), and we can learn lessons from their successes and failures. My own attempts to help build capacity for digital education have included drafting an open online course, ‘Distributing Learning and Knowledge Creation to Reduce Inequity and Transform Higher Education’ (Peoples-Praxis, n.d.). The course aims to situate open and distributed education in a broad framework of knowledge equity, and offer suggestions for how to achieve this change. It seeks to build capacity within the university sector—for the leadership, as well as academic staff and others. You can view the course directly (Peoples-Praxis, n.d.): it is free to access as it is published under the most permissive of the Creative Commons licences, and designed to be used and adapted by anyone else.

The course has a number of sections, and if you access the course you will recognise many of the themes included in this book:

- Introducing the course—why it matters

- The concepts of distributed and networked education

- Digital technologies for education

- Distributing knowledge creation

Open access to educational resources and research

Designing programmes which incorporate distributed and networked education

Practical aspects of implementing the distribution of education and knowledge creation

Collaboration, input to improve the course, or suggestions as to how it might be used or accredited would be most welcome. This course, even if widely adopted (although unfortunately there is no sign of that to date) would not be nearly adequate to build more than limited capacity. Other initiatives, sector wide, will be needed. Please note, that the course is likely to undergo change over time, but I hope that the link you will see in the reference list will still take you to the course.

As well as academic staff, who will play essential roles as advocates for change in addition to playing their part in capacity building, we should not forget the role of professional support staff, which can go beyond a role in programme design. The point has been made nicely by Zak Liddell and Leigh Kilpert (2025, p. 575): ‘By recognising the importance of all heroes—academic staff, professional services staff, and students—and promoting their active participation, UK universities can elevate their educational offerings and positively shape the future of Higher Education’.

Capacity building outside the higher education sector

While capacity building is required for those working in the university sector, a more broad-based approach will be needed to gain community acceptance for change. Higher education is highly political and competing visions and policies are often outlined during election campaigns. As I pointed out in Chapter 1, there is a partisan divide on the value to the country of a university education—in the USA, Democrats are more likely than Republicans to take a positive view (Parker, 2019). In Africa, it may be worse, with a provocative paper ‘The Politics of Higher Education: The Battle Over the Control of Knowledge in Africa’ by Milkessa Gemechu (2025) arguing ‘that the governing regimes in postcolonial Africa that turned dictators abused learning institutions to manufacture consent and legitimacy to their rules, undermining indigenous education and knowledge in Africa’. The paper also makes a

suggestion as to why there might be political capital in higher education: ‘Higher education in particular teaches how to develop critical thinking and problem-solving skills’. Wherever you are, political engagement will be required for the transformation of higher education, and in fact may drive it.

As Karen O’Brien and colleagues (2013) identify in their paper ‘You Say You Want a Revolution? Transforming Education and Capacity Building in Response to Global Change’, one of the key ways in which educational transformation might occur is to educate politicians and the public at large about the need for change. This will require a different form of capacity building to recognise the fact that enrolling in courses is an unlikely method. This brings us back to Chapter 1 and a consideration of the societal value of education, and forward to Chapter 12 and a consideration of how to get started on the transformation process.

Certification

In a distributed and decentralised environment, certification of content and educational outcomes will be very important. This is especially important if we are going to have a student-led option as discussed in Chapter 5, where students select courses of interest and relevance to them and seek mentoring and certification from an accrediting body. In terms of whole courses and academic awards, universities offer accreditation to their own online courses. There are also a number of organisations who will accredit universities and courses to deliver online education. This gets more difficult where parts of courses are concerned. Certification options for Open Educational Resources (OER) are very limited. There are some opportunities for the accreditation of OER in the form of microcredentials which can then be used towards an academic award (McGreal et al., 2022). The OERu (n.d.) is an example of an organisation that does accredit and accept transfer of micro-credentials towards formal qualifications. UNESCO (n.d.) has discussed the potential of micro-credentials and emphasises the need for their academic recognition and for a system of quality assurance. My suggestion in Chapter 5 of a peer review system for educational materials could maybe start at the micro-credential level.

A paper by Schon and colleagues (2021) found very few examples

of institutions who would certify OER, but calls for '[...] ambitions towards openness of the OER movement regarding possible certification procedures, namely open development, open content, open assessment and open certificates'.

There are some opportunities for educators to gain accreditation of their competence in the use of OER through professional development programmes. One, targeted at university library staff, is offered by the Council of Australian University Librarians (n.d.). The Open Education Network (n.d.) offers a Certificate in Open Education Librarianship, again targeting library staff, while there is a well developed certificate course in the use of Creative Commons licences (Creative Commons, n.d.).

If the use of open access education is to expand, it seems clear that the issue of accreditation needs to be explored in depth and opportunities expanded.

Steps towards distributing knowledge for equity

- Participation in the digital transformation will require universities to build capacity for digital education within their own institutions, as well as among their students, the wider higher education sector, and the community at large
- Capacity building initiatives for academic, support, and administrative staff of universities include an open access course on distributing learning and knowledge creation to reduce inequity.
- Further options need to be developed for certification and accreditation of competence in digital education.

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PART E. HOW TO MAKE THE TRANSFORMATION WORK

Introduction

The previous sections of the book have discussed the various components of a transformed higher education system to increase equity, and this leads us to a final section about how to start the transformation and make it work. The section starts with the central component of the diagram of the framework for distributing knowledge for equity, 'Collaboration'. While universities have adopted the competitive business model, the chapter shows the importance of collaboration to each part of the framework. Without collaboration, equity will be difficult to achieve. The section then discusses methods of transformation, before concluding with an urgent call to action.

11. Collaboration in development and delivery

Collaboration is seen as central to any attempt to achieve equity in higher education. The chapter goes through the framework for distributing knowledge for equity and shows the importance of collaboration to each part.

Collaboration in development and delivery resides right at the centre of the diagram illustrating the framework for distributing knowledge for equity. This is to emphasise the importance of collaboration for each part of the framework. While competition may have both positive and negative influences on the higher education sector (Hart & Rogers, 2023), it is clear from the work discussed throughout this book that competition is not going to contribute to equity. In the field of higher education, the replacement of a collaborative approach by a competitive corporate approach has been attributed to the widespread adoption of neoliberalism—here is an Australian perspective from Adam Lucas and James Guthrie (2025, paras 2, 3):

In the late 1980s and 1990s, Australia's public universities were transformed into corporate enterprises informed by the principles of New Public Management (NPM). As the public sector version of neoliberalism, conservative and nominally progressive governments began adopting management structures, techniques, and processes from the private sector to deliver public services [...] A major consequence of incorporating NPM mechanisms and principles into university management and administration has been the adoption of commercial business models by vice-chancellors and university governing bodies. The result has been a radical shift from quality to quantity in higher education policies.

Raewyn Connell (2015) previously made a similar point:

Australian universities were transformed from small colonial outposts of European education to a relatively large public higher education sector by national development funding. Neoliberal management since the 1980s has transformed the universities into export-oriented corporations, is placing severe stress on the younger workforce, and is generating a crisis in the production of an intellectual culture.

Another aspect of corporate behaviour in the university sector is highlighted in a report from the Australia Institute, a major Australian think tank, titled 'Australian Universities Slash Costs, Staff and Courses, while Lavishing Hundreds of Millions on Themselves' (Media Release, 2025):

In 2023, Australia's public universities spent at least \$363 million on advertising, marketing and promotion. Ten universities spent \$390 million on travel in 2023. The Australian National University spent \$42 million on travel, with executives spending \$11 million on their own. In 2023, 27 of Australia's public universities spent \$410 million on consultants, or roughly \$15 million each.

The large salaries that senior university management have managed to attract for themselves, claiming similarity with CEOs of large business enterprises, are related. In Chapter 12, I discuss whether university leadership is adequate for a role in transformation of the sector. To transform higher education from a commodity-based model to one grounded in equity, we need to loosen the stranglehold of the prevailing business approach. This business model has an impact on academics, as noted in the paper 'Designing Educational Futures: Imagine a Collaborative Bloom' (Abegglen et al., 2023, p. 527):

While universities compete with each other as a fundamental part of their business model, academics compete with each other, and education competes with research within institutions as a function of the reward systems under which they operate, true collaboration is not possible (p. 531) [...] Proposed is the addition of collaboration as a central element to education, to break individuality and hierarchy—for collective, socially just action. The perquisites for this is openness—and the abandonment of the neoliberal competitive approach to education [...] (p. 527).

Christine Musselin (2018) describes how entrenched competition has become in some parts of the higher education sector:

Competition has dramatically increased in this sector as national governments have developed competitive schemes and private actors

have developed bibliometrics or built on bibliometrics to quantify scientific activities, and more broadly academic work. They thus allow comparison and rankings between individual researchers, research units, higher education and research institutions and countries. As a result, academic judgement today increasingly relies on impersonal judgement and references based on assessments derived from algorithms, quantified indicators and standardized processes (p. 677).

This reinforces many of the needs for university reform, but shows how difficult it will be to overturn these behaviours by the sector in favour of a collaborative equity framework. There are a number of issues covered in the book that may help such a transformation as it relates to research, including open publishing and a focus on distributing knowledge creation to include under represented populations. There are many successful attempts to increase research collaborations, and these seem to have been explored more extensively than teaching collaborations. Since education is the main focus of this book, I will concentrate on educational collaborations and work through each of components of the framework for distributing knowledge for equity later in the chapter.

We can take inspiration from others, however. The cultural African belief system of Ubuntu, *I am because we are*, emphasises the collective over the individual, and can be a model for a collaborative approach to education (Oviawe, 2016). The icon Berners-Lee, in his book *This Is for Everyone* (2025, p. 132), describes the importance of the ‘two C’s—creativity and collaboration—in the way he envisaged the World Wide Web to enable ‘the ability of a group of people to be creative’.

My previous book included a section on collaboration (Heller, 2022). In addition to suggesting that collaboration should be taught and become a measurable and assessed outcome of the education process, the section asked questions about the levels at which collaboration can occur:

- Can we collaborate within an individual university—between individuals and departments as well as between administrators and academics?
- Can different universities collaborate with each other?
- Can universities collaborate with other organisations—industry and other parts of the community?
- What about international collaboration?

I'm not going to repeat what I wrote then, but would like to explore how collaboration might be applied to and benefit components of the framework for distributing knowledge for equity.

Societal values

To make education responsive to societal needs and values, the sector will benefit from appropriate collaborations with industry and the wider community. While universities themselves have governing bodies, these have been criticised as being too business oriented and supporting the commodification of education at the expense of wider societal requirements—such as equity. Collaboration with external individuals, organisations, and governments offers much potential, beyond any regulatory functions they may perform. How the sector can respond adequately to climate change is an important example of where collaboration with industry and organisational expertise can be brought to bear, and is relevant at each of the levels of collaboration in my list above.

Distributed knowledge creation

Community collaboration is going to be vital here, to pave the way for populations and communities to be included in the research agenda.

Scholarly publishing is by nature a collaborative venture. Authors, reviewers, and publishers work with each other. The adoption of innovative open publishing options will require even more collaboration, especially the Diamond version where local ownership supplants commercial publishers. Local owners such as professional societies and universities will benefit from collaborations both to spread the load on individuals and finances, and for sustainability. There are a many forms of collaboration in this space. Open Book Publishers (n.d., para 1) describe their approach as follows: 'At OBP we collaborate with like-minded organisations to develop open infrastructure for the publication of open access works, to share our books via open platforms and services, and to promote our vision and values across the world'.

Similarly, Transitioning Society Publications to Open Access (n.d., para 1) are: 'A group of like-minded individuals from libraries, academic institutions, publishers, and consortia [who] have organized to connect society journal editors and publishers (and any libraries or consortia that support them) with support and useful resources related to transitioning society publications to open access (OA)'.

The Open Book Collective (n.d., para 1) is 'A charity bringing together publishers, publishing service providers, and scholarly libraries to secure the diversity and financial futures of open access book production and dissemination'. One of its activities is to support an initiative to revolutionise academic publishing in Nigeria through open access, including BookHub (n.d.), 'a digital publishing platform that streamlines book creation, collaboration, publication, and distribution, powered by an open-source technology'. This example could equally fit into the digital infrastructure chapter in this book, an indication of the benefits that the digital revolution will continue to provide to support openness and knowledge equity.

Best practice in online education

There is a rich literature on the benefits of collaboration between students in producing effective learning outcomes (Bach & Thiel, 2024), and the term collaborative online learning has gained currency. This extends to international settings with the term Collaborative Online International Learning (Hackett et al., 2023).

At the level of course development and delivery, the book *Collaboration in Higher Education* by Sandra Abegglen and colleagues (2023) offers a rationale and many case studies of the benefits of collaboration and co-creation, among academics within and between institutions, with stakeholders and with students. Although not its main focus, the book does contain valuable examples of digital collaboration, and the principles and benefits of collaboration can easily be applied to the online setting.

Vasiliki Papageorgiou and colleagues (2025) explore the importance of using a collaborative design process to both ensure the professional development of the educators and the production and delivery of high

quality online education. Similarly Sandris Zeivots and colleagues (2024) offer co-design—including educators, developers, designers, students and industry representatives—as a valuable collaborative method of improving course and curriculum quality.

In my own experience, online course development has always been a team activity, made much easier by collaborative software to involve distributed team members. I should say that collaboration between institutions has been difficult to achieve. In Peoples-uni (Heller et al., 2022), where individuals volunteered their time and expertise and had no departmental or institutional territory to protect or advance, course development and delivery were always collaborative. The goal was public health capacity building in low- to middle-income countries. Each of the 21 course modules was developed, and then delivered, by a team among the tutors from 51 different countries. There was only one situation where a module leader asked for one of the tutors to be removed. Teams were joined, including as leaders, by graduates of the programme, broadening the geographical and experiential scope of the tutor experience.

We should not forget a role for student-led course development. A report from Finland (Herranen et al., 2020) records the successful collaborative creation of a master's course on sustainability by 5 master's students. Although the study concluded that student-led development seems to be viable, the authors also identified the challenges in such an approach and ways of meeting them. At the other end of the world, a group from Brazil (Torres et al., 2017) reported a 'collaborative and open educational experience for students through the creation of OER as well as the incorporation of Facebook, YouTube and Whats App as supporting environments in the teaching and learning process'. They concluded 'that this experience was positive for contributing to the knowledge production in a collaborative way, with criticality, autonomy and creativity'.

Distributed education delivery structure

While it is possible for individual organisations to transform to a distributed model, collaboration within each organisation will still

be required and unleashing the power of collaboration between organisations might have many advantages. If we take the example of physical hubs providing face-to-face education that supplements online resources and delivery, these could include industry partners (consider health services for health professional education, or teaching practice for teacher training, as examples). Regional hubs, which already exist, such as the Australian Regional University Study Hub programme (Department of Education, n.d.), will allow all kinds of collaboration. Among the aims are to: ‘Encourage strong links between the hubs and other organisations in the area, including other education and support services that students may access, and industry’.

Universities can collaborate via these hubs, which would be especially valuable for remote and regional areas, and other collaborators such as libraries have great potential. This would circumvent the need for new buildings to be built, and would capitalise on existing resources with interests in common. Jack Goodman back in 2015 described his vision for libraries as study hubs for university students both in terms of physical spaces that already exist and their focus on learning, and Emma Power and colleagues (2021) describe how students from low socio-economic backgrounds can gain special support from a collaboration between universities and local libraries.

Open Educational Resources and Practices

Collaboration and sharing are the key drivers of the OER movement. There is not much more to say other than offer a few examples. More than ten years ago, Andy Lane (2012) reported that the advent of open licensing provided new opportunities for collaboration and described a number of case studies which experimented with different ways of communicating in the development of educational resources. He concluded: ‘[...] there may be multiple reasons and models for collaborating on the development of educational resources the very openness provided by the open licensing aligns both with general academic values and practice, but also with well-established principles of open innovation in businesses’.

A European Union project (Miller et al., 2018) explored the potential for collaborative design of OER with community stakeholders.

The Government of Saskatchewan (2025) has partnered with three collaborating higher education organisations to create a new website to host OERs through one central website. The astute Education Minister is quoted in the media release: ‘Open education resources are important tools that help make post-secondary education more accessible and affordable’.

There are a number of services that provide an environment, as well as relevant software, to enable and encourage collaboration. OER Commons (n.d.) is one: ‘OER Commons is a public digital library of open educational resources. Explore, create, and collaborate with educators around the world to improve curriculum (sub-heading)’.

Curated repositories

Again, by definition, collaboration is the central feature of open repositories of educational materials, where educators make their resources available for others to use, adapt, and improve. Nevertheless, a study which analysed OER repositories (Perifanou & Economides, 2023) found that there was room for better collaboration through interconnecting the repositories, as well as collaborating between them and exchanging good practices.

Policies and licences

A publication, itself a result of a collaboration between academics in three countries, ‘Collaborative Policymaking: A Qualitative Systematic Review of Advice for Policymakers’ (Cairney & Toomey, 2024), reviewed 86 publications on the topic of collaborative policymaking. The authors concluded:

We synthesise the available advice to identify five main features of collaborative policymaking: plan and prepare to collaborate, such as by designing rules and allocating resources; create a sense of collective purpose, such as by setting a boundary around the collaboration and co-producing a common vision; foster creative methods to visualise collaboration and design policy; create new forums to supplement formal collaboration; and clarify the roles and skills essential to each collaborative task.

An example of the collaborative development of guidelines is the UNESCO (2023) *Guidance for Generative AI in Education and Research*, which was developed for UNESCO by a collaboration led by UNESCO, with contributions from many of their staff as well as from 14 named individuals from at least seven countries representing academic centres and not-for-profit organisations. The breadth of the collaboration should help with both the range of experiences brought to the creation of the guidelines and their adoption.

Capacity building

There are a number of examples of collaboration between different universities in capacity building programmes. The one with which I am most familiar is the International Clinical Epidemiology Network (INCLEN). Started by the Rockefeller Foundation in the early 1980s, five universities from the Global North collaborated on offering research capacity building through master's courses, in what has become known as evidence-based medicine. Mid-career researchers from 26 medical schools in the Global South were trained, and units for collaborative research within their medical schools were established, and educational programmes for their colleagues in their own and neighbouring institutions were also developed. Leadership of the programme, now through the INCLEN Trust International (n.d.) has moved to the Global South. It identifies many of the benefits of collaborative capacity building, and has even mitigated the dangers of colonialism by transferring leadership to the Global South.

Digital infrastructure

The digital transformation of education underlies many aspects of this book, so in the section on collaboration it is worth quoting this part of the UN Global Digital Compact, reproduced in the UNESCO (n.d.) Digital Transformation Collaborative:

Our cooperation must be agile and adaptable to the rapidly changing digital landscape. It is only by working in collaboration and partnership with all stakeholders, including governments, the private sector, civil society, international and regional organizations and the technical and academic communities, that we can realize the digital future we seek (UN Global Digital Compact, 2024).

Steps towards distributing knowledge for equity

- To counter the rise of competition as a consequence of the neoliberal commercial business model, collaboration is an essential component of higher education transformation.
- There are many ways in which collaboration can occur within and between universities and with other organisations.
- Each part of the framework for distributing knowledge for equity can be explored for examples of the benefits of collaboration.

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12. Getting started on transformation

This chapter discusses how higher education can shift towards a distributed model. The chapter discusses possible funding models and then reviews and identifies the importance and methods of system and organisational change, considering the micro, meso, and macro levels. This analysis leads to a new framework for transforming higher education within a societal context defined by equity, climate change responsiveness, and decentralisation, and identifies the actors who may serve as catalysts for that change.

If we are going to transform the higher education system, we will need to develop and implement a transformation policy. The policy settings required to support the transformation of higher education towards increasing equity are multiple, and they will vary depending on where you are located and the stage of the policy cycle you are working within.

Previous chapters have worked through each of the features of the framework for distributing knowledge for equity, and at the end of each chapter the steps that can be taken to move us towards a distributed model for knowledge equity have been identified. So we know what we want to do, and why, guided by the framework. Now we need to consider how to implement a transformation. This is not going to be easy, because radical transformation, not tinkering, is needed.

Before going much further, we should think about how to fund this new distributed education system.

Funding models

I hope that a reader might be stimulated to explore in detail the funding requirements of the transformation I propose in this book. This will involve a separation of the educational and research functions of the

sector. In many settings, income from teaching students, especially international students, cross-subsidises the research carried out in universities. This is a major structural problem, beyond the scope of the book, but sorting it out will be a critically important component of the transformation. While we wait for a proper economic analysis of the distributed decentralised model, I can see that savings could come from reduction in the cost of central campus buildings (as well as short-term gains from their sale) and reduction in managerial staff numbers and salaries and marketing costs.

The issue of funding open access publications and resources has lessons and relevance to the general theme of the book. There have been a number of attempts to estimate the ways of financing open access alternatives, in particular Open Educational Resources (OER) and Diamond Open Access publications. Reducing reliance on the centralised control, ownership, and profit-oriented business models of traditional research publishing and BigTech infrastructure, with their dependence on commercialisation, will require alternative funding mechanisms.

A UNESCO commissioned report (Tlili et al., 2020) identified three main ways of funding the development of OERs, based on a literature review and survey of experts. The first is internal institutional funding, which requires supportive policies—for example, recognising OER work in promotion processes and investing in capacity building for OER production and dissemination. If these resources are now ‘free’, the institution risks losing revenue, although it can still use them in their own courses and can gain from the resources created externally by others. Public funding is the second option, typically delivered through grants, but it raises concerns about long-term sustainability. The third option is donations, mainly from philanthropic foundations, although this model likewise lacks a stable funding base. Supporting all three approaches is the presence of OER networks, which can offer resources and collaboration, if not direct financial support. A number of other models were noted, including advertising revenue, fee-based services for learners such as tutoring or certification within a ‘freemium’ model, and the provision of learning analytics to companies.

Funding models for Diamond Open Access publications are better developed. Funding from the European Union supported a series of

workshops led by the Open Access Scholarly Publishing Association and the European Research Infrastructure for the development of open scholarly communication in the social sciences and humanities (Mosterd, 2021). Ways of generating income, without charging authors and publishing under an open access licence, included ‘print sales (which remained significant for some publishers), library membership fees, grants & donations, public subsidies, institutional subsidies, e-sales & fees for additional author services’. Many of the publishers are academic institutions themselves, and a collection of case studies can be explored on the website *Business Models for Open Access Books* collated by Lucy Barnes and François van Schalkwyk (n.d). Community-led Open Publishing Infrastructures for Monographs, COPIM, and its successor Open Book Futures (COPIM, 2023) represent a community of scholars helping to develop the infrastructure and business models for open access publishing. They promoted the principle of *scaling small* (Adema & Moore, 2021) which:

[...] eschews standard approaches to organisational growth that tend to flatten community diversity through economies of scale. Instead, it puts forward the idea that scale can be nurtured through intentional collaborations between community-driven projects that promote a bibliodiverse ecosystem while providing resilience through resource sharing and other kinds of collaboration.

Again, we encounter collaboration here—between projects, libraries, universities, and funding organisations.

Funding organisations have been key to the development of scientific journal publishing, as described in Chapter 3, and funders of research are increasingly demanding that the results of the research they fund are published as open access. The Gates Foundation has its own journal to publish research resulting from its own funding, of course without author fees (Gates Open Research, n.d.). In accordance with the Publish-Review-Curate model described in Chapter 3, preprints are uploaded first and transferred to the Open Research journal after peer review. The Foundation will also not allow grant income to be used for fees to the author (article processing charges) for publication in other journals. The Wellcome Trust and the EU also have their own publishing platforms.

A perceptive article by Frances Jones (2024), ‘Open Access: The Price of Diamond’, reports that the EU and various research agencies have

provided initial support for the push to the Diamond model. She says that this model is really strong in Latin America and is becoming the dominant model in the Global South—I have personally been involved in the development of platforms in Africa for the publication of public health research. Eventually, in order to wrest control from for-profit publishers to ownership by the academic community and to scale up and be sustainable, taxpayers will have to pay through their support of institutions and research funders—but this may well be cheaper than paying high library subscription and article processing charges.

Are there lessons from the funding of Diamond Open Access for the funding of the transition to the distributed and decentralised university model I have proposed? The main lesson for me is encouragement that the Diamond model for publication is being developed and expanded and has a great deal of energy and many individual and institutional advocates are working on sustainable funding models. The themes are the same for publishing and education more broadly, reducing central control, giving leadership to the academic community, and achieving knowledge equity. Solutions can be found given the benefits to be gained.

How to achieve organisational change

Given that we do want to transform, how can we change the current organisational structure appropriately? There are a number of theoretical approaches to organisational change and a well developed discipline of change management (Wikipedia, 2026). I am going to quote selectively from the literature and give my own view on how we might get started on transforming higher education.

In his 1996 book, *Leading Change*, John Kotter identified eight steps that an organisation should take in order to make real changes, later updated (Kotter, n.d.). As a professor at the Harvard Business School, his focus was on business, but the steps have been widely adopted, including in the world of education (Wentworth et al., 2018). Kotter's model includes eight steps in the following order: (1) establish a sense of urgency, (2) form a powerful guiding coalition, (3) create a vision, (4) communicate the vision, (5) empower others to act on the vision (also called removing obstacles), (6) plan and create short term wins, (7) consolidate improvements and produce still more change, and (8)

institutionalize new approaches.

Professor Jackie Potter (2023) from the University of Chester has encouraged us to apply micro, meso and macro levels to educational development (para 4):

Micro level educational development—supporting individuals to develop teaching expertise and working with department teams to develop effective ways of working, for example, supporting the development of assessment practices and curriculum design [...]

Meso level educational development—working to improve institutional systems, structures, procedures, rules, and guidance that determine ‘the way we do things’ within our home institution [...]

Macro level educational development—becoming involved in developing and sharing practice at a national or international level [...]

I will return to these concepts as we proceed through the chapter.

System change

The theme of micro, meso, and macro change is also picked up in the literature on system change. This recognises that change within an institution is not enough, and that change to achieve sustainable transformation requires more. For something as large as transforming higher education, we will have to expand on the macro level to include governments, politicians, community engagement, governance and financial considerations. There will also be a role for non-governmental support and encouragement from funding agencies. The Spheres of systems change model described by a think tank (NPC, n.d.) builds on the micro, meso, and macro system levels, from internal change at the micro end to cultural change at the macro end. The three micro/meso/macro levels represent eight spheres reflecting different dimensions of change:

Micro: Internal, Behavioural; Relational; Organisational;

Meso: Collective; Infrastructural;

Macro: Political; Cultural.

In *Facilitating Equitable Systems Change*, Rockefeller Philanthropy Advisors (2023, p. 2) state:

Systems change calls for long-term, collaborative, and cross-sector approaches that seek to facilitate lasting and often transformative change. By tackling problems at their root causes, systems change, particularly when it is grounded in equity, carries with it the promise of greater, enduring impact and change vis-à-vis society's most significant challenges.

The same report quotes John Kania and Cynthia Rayner in 'Systems Change: Why It matters (and Isn't Just a Buzzword)':

Most social and environmental problems require comprehensive changes in public and private systems, structures, policies, and social norms to make long term sustainable progress. This deeper, more holistic way of working has come to be known as systems change, an approach that can be defined as 'shifting the conditions that hold a problem in place'.

The role of the individual within the institution can be critical for advocating change. Institutional entrepreneurs are defined by Deborah Jackwerth-Rice and colleagues (2023) 'As agents of strategic institutional change, institutional entrepreneurs (IEs) draw resources from their structural environment to alter the structural context in which they are embedded'. In the framework which I develop below, I have used the term individual change agents to include institutional entrepreneurs.

It is clear from the both the theory of organisational change and the example of OER that change can be complex and take a long time. The figure below is an attempt to draw together and capture the main themes for system change, as they relate to transformation towards the development of a distributed and decentralised way of creating knowledge equity. This transformation framework builds on the change literature quoted above and is set in the context of knowledge equity, the need to respond to climate change and societal moves towards decentralisation of the internet and social media. It identifies three settings which will be required to achieve system change, from micro to macro—from individual universities through to government policy.

Individual institutions (micro): Structural, behavioural, relationship change within universities; individual change agents; capacity building

Beyond the institution (meso): Policies and regulations; university, global, professional collaborations; non-governmental organisations; funding agencies

The broader community (macro): Governments; politics and laws; cultural change; community awareness

The eight steps to be taken for organisational change (Kotter, n.d.) surround these three settings in the figure, and are relevant for each.

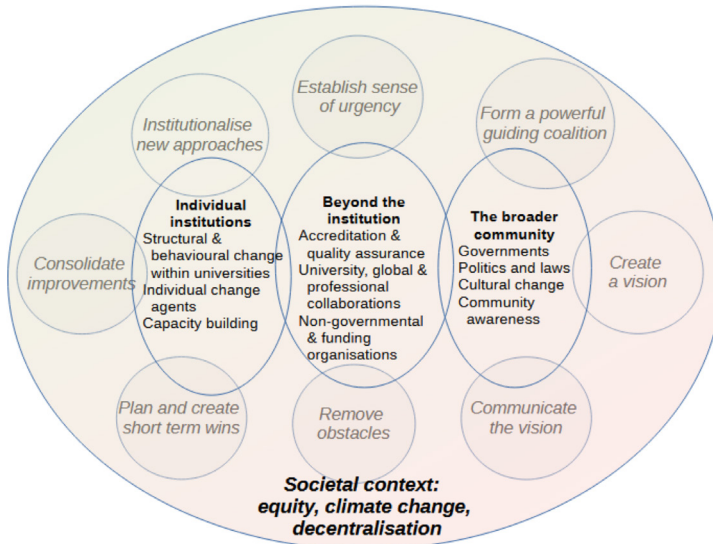


Fig. 12.1 Framework for higher education transformation towards a distributed model. Created by author, 2026, CC BY. Notes: Ellipses are micro, meso, and macro system change requirements; circles are steps towards organisational change; societal contexts of equity, climate change, and decentralisation overlay each of these.

The framework itself, with the requirements for system change and the steps towards organisational change, might be applicable to a transformation process with any model in mind. Setting this in the societal context of equity, climate change, and decentralisation brings us to a distributed model.

Given all the moving parts, it is evident that it is going to be a complicated process to coordinate all of this, and find a way to transform to a distributed model. So we now need to consider who is able to take this forward.

Who will be the catalysts of change?

As I have discussed earlier, current top-down university leadership has been criticised for allowing the competitive commodification of education and is unlikely to lead the kind of transformation required.

I touched on distributed leadership in Chapter 5, and Joseph Whittaker and Beronda Montgomery (2022) also promote the idea for shared leadership drawing on distributed responsibilities across the university ecosystem to achieve system change. The contrast between bureaucratic versus distributed leadership as models of change are highlighted by Deborah Ancona and colleagues (2015), with the distributed form more able to adapt to change.

We might expect unions to be advocates for change, and there is some evidence that academic union membership has increased recently, in response to the pressures facing the academic community. Academic unions are active globally in advocating for and mobilising to protect academic freedom (Education International, 2025) and in enterprise bargaining for staff salaries and conditions. The Estrado network in Latin America has united unionists and academics to offer alternatives to the neoliberal approach for many years (Olivera & Feldfeber, 2024). However, I do not see much evidence of union advocacy for innovation and transformation of the system.

Students can also be important drivers of change. They have been in the forefront of advocacy for universities to respond to climate change, for example in medical schools (Hampshire et al., 2022). Students are not attending lectures or taking part in on-campus activities as they used to. If we can engage them, I expect that students will be major advocates for university transformation.

Advocacy groups should have a role. There are many who advocate for open access education, such as the member based non-profit Open Education Global (n.d.) 'We promote, support, and advance open education around the world'. The institution based Open Education Network (n.d.) 'commit to working together to make open the default in higher education. When we advance open education locally and collectively, we empower faculty, remove barriers to education, and enhance student success'. There are many other advocates for open education, and as you will see in the final chapter I am hoping that a group might evolve to advocate for the distributed version as proposed throughout this book.

How about relying on governments to mandate and facilitate change? My own experience relates to the recent Australian Government (2024)

review of higher education, the Universities Accord. There was no major structural change recommended, although the first of the agreed priority actions recommended in the interim report (Australian Government, 2023) was to increase regional study hubs, hence was consistent with the idea of a distributed university model. There was no recognition of a broken system that needed to be transformed.

George Siemens (2022), a renowned educational thinker and innovator, puts it nicely:

Looking a decade into the future, international organisations such as OECD see a world where technology is central to learning, where systems of education are dramatically different from what we see today [...] The future of education is one that will only emerge to serve the broadest range of stakeholders when all participants have the ability to have a voice and to shape the conversation. Finding points of leverage in shaping learning systems through policy, research, funding, and planning landscape is the critical work of today for educational leaders (para 9).

So the complexity of the task of transformation and lack of ideas as to who might be the drivers and leaders of change makes it all seem very difficult. However, the need is great, and we have to find a way forward.

‘Proof of concept’: Crisis as a catalyst for change

While the circumstances that forced some Ukrainian universities to transform are tragic and not to be wished on any institution, they have nonetheless demonstrated that a distributed model can work when required, and work well. Berdyansk in Eastern Ukraine was occupied by Russian troops during the 2022 offensive, forcing staff of the Berdyansk State Pedagogical University to leave the city for their own safety. The story is told well by Tim Winkler, following interviews with Professor Yana Suchikova, Vice-Rector for Research (Winkler, 2025) and describes how this led the university to relocate its campuses and function as a ‘University without walls’. As Professor Suchikova says:

Our university is now a University Without Walls. This doesn’t mean we have no buildings at all—rather, it means that no one is required to be “on campus” (Baptism of fire—almost literally).

There have been a number of peer reviewed publications such as Suchikova (2024) and Finikov et al., (2026) which point to education and research standards being maintained or enhanced. At their seminar presentation Suchikova and Lyman (2026) reported how the academic staff found that they could communicate with students in all kinds of other ways: 'A university is not walls. A university is people' (slide 51).

Although not a crisis of magnitude which faced Ukraine, the higher education sector is facing a crisis in many countries. Let's act now before the crisis becomes more acute.

Is university reform really possible?

There are many critiques of the current higher education system, which I have only touched on in keeping with the focus of this book on equity. A book by the late Graeme Turner, *Broken: Universities, Politics and the Public Good* describes a battered and broken system, as quoted in a *Conversation* article by Susan Forde (2025) who concludes:

The evidence suggests a major overhaul is required to remake Australia's universities into institutions that attract, educate and enable students and academics, and drive the intellectual endeavour of our nation. Turner shows this cannot and will not be achieved under current circumstances.

'The Hopeless University: Intellectual Work at the End of The End of History' by Richard Hall, described here (Hall, 2020), has a title that says it all!

These books and others describe the problems but to my mind offer only limited reforms, which are unlikely to tackle the depth of the crisis facing the sector. As I have tried to point out in this book, it is a new vision, a transformation, that is required. Is the higher education system able to transform, or will education be found outside universities and even taken over by BigTech with its AI systems?

Stephen Downes (2025) agrees 'that higher education is to be found increasingly outside academic institutions', drawing on Annalee Newitz's (2025) in her article 'Is the Future of Education Outside Universities?'. Newitz, in turn, refers back to the early-twentieth-century observations of US historian Henry Adams, who anticipated the emergence of learning environments beyond traditional institutional structures:

As Adams argued, education should prepare us for what is coming next. And what is coming, I believe, is a world where academic freedom exists only outside academia. I fear for the future of academic institutions, but not for the future of education. As long as we support our renegade professors and hacker space tutors, the quest for knowledge will never be stopped (para 11).

Rather than hopelessness defining the extent of the problem, this book attempts to detail a way forward, and a way to get started on a transformation.

Getting started

A practical mantra for change is: think big, start small, act now. In considering how to begin transforming the higher education sector, the ‘think big’ vision is essential, but we may need to ‘start small’—perhaps with a single organisation willing to pilot this transformation and show it can be done. Still, we must ‘act now’. The next chapter tells us why.

Steps towards distributing knowledge for equity

- Transforming the higher education system towards greater equity through a distributed model will require supportive and appropriate policy settings.
- Funding models might build on those developed for Diamond Open Access publishing, due to similar themes of reduced central control, leadership by the academic community, and commitments to achieving knowledge equity.
- Transformation will require both organisational change within institutions and system-level change across the sector, situated within broader societal shifts toward equity, climate responsibility, and decentralisation.
- Change catalysts will be required and, since current sector leadership is unlikely to be up to the task, new forms of advocacy may need to emerge from within academic and community networks.
- Early progress may follow the ‘think big, start small, act now’ mantra for change, with pilot initiatives that demonstrate the feasibility of distributed models.

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13. It's urgent!

The final chapter makes the case for immediate action, given the failures of the current university system and the pressing need to reduce the sector's carbon footprint.

There is mounting evidence that the current higher education system is broken. There are attacks on academic freedom and a failure to adequately fund the sector. The public good mission of the university has been replaced by a commercial and competitive model that commodifies education and allows inequity to flourish. There is no serious attempt to respond to the climate crisis. As I have demonstrated throughout the book, the system is inequitable. The business model is failing in many countries, with increased dependence on income from international students without addressing global needs for education. Commercialisation has led to an increase in casualisation of the workforce. Precarious employment of contract teachers affects their teaching (Khan et al., 2024) and supports a system where education is less valued than the research which it cross-subsidises—both inadequately. Academic staff, not just those on precarious casual contracts, are being fired and courses closed. Some universities are on the verge of bankruptcy while others are merging as a survival tactic, staff and students are dissatisfied and the public and governments unwilling to provide additional funding or undertake serious reform, let alone transformation. Yet, the sector does still include many committed and innovative educators who have the interest and ability to identify and tackle solutions—some of which this book attempts to demonstrate. The time for action is now.

One of the main societal imperatives for change is the need to tackle climate change. While the higher education sector's contribution to climate change is modest in relation to that of other sectors, if society's supposed science and education thought leaders do not take a leadership

role in this crisis, who will? A reduction in the sector's carbon footprint is one of the key potential benefits of the distributed model of education. The pace of climate change is one key reason to 'act now'. Here is the conclusion of a paper by Eleanor Murray and Hugh Montgomery, in March 2025:

Climate change poses an immediate threat to human health and survival. There remains little time in which to act if the most severe outcomes are to be prevented. Even were we able to stay below the 'Paris Deal' 1.5°C target (which we can't), and even were this safe (which it isn't), we have <60 months left to nearly halve GHG emissions, and must be at 'net zero' emissions in less than a decade.

We must all play our part, starting today. We must take action in our personal lives (above) and engage others to act. We must also integrate sustainability into our own service delivery, and work within our organisations to decarbonise them, and their supply chains. We must advocate for climate action from governments and legislators, reframing climate action as a health issue to mobilise support for comprehensive climate policies. The time for complacency is over. There is a real climate emergency; we must approach it as such.

Urgent change is needed, so I propose transformation to a truly distributed model of higher education, with equity as the defining purpose—starting now.

I make a call for those who might want to join in some kind of advocacy for such a transformation. Please send me a message or join our call for a bold new vision for higher education (Gomez & Heller, 2026).

Steps towards distributing knowledge for equity

- The higher education system is broken and needs urgent repair.
- Addressing climate change is one of the major social imperatives shaping the future of all sectors, including higher education.
- Urgent transformation is required; this book calls for advocacy toward a truly distributed model of higher education, with equity as its defining purpose.

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Experts in their field, these readers give their time freely to help ensure the academic rigour of our books. We are grateful for their generous and invaluable contributions.

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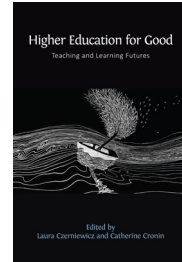
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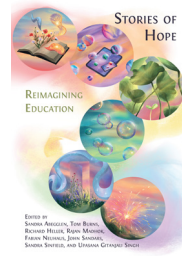


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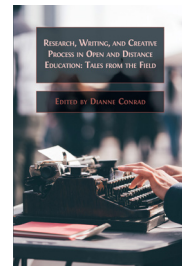


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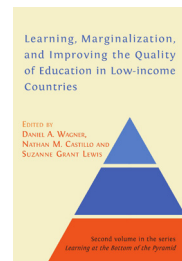
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RICHARD HELLER

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Drawing on research, policy analysis, and real-world examples from across the globe, Richard Heller presents a compelling case for a distributed model of higher education designed to promote knowledge equity. The book shows how corporatisation, managerialism, and commercial control of educational technology and academic publishing have narrowed participation, reinforced global inequalities, and weakened universities' ethical foundations. At the same time, it highlights the opportunities offered by digital technologies, Open Education, and collaborative knowledge creation to reverse these trends.

This volume introduces a practical framework for distributing knowledge more equitably—across its creation, publication, and delivery—grounded in core values of justice, autonomy, sustainability, and public good. It explores how open publishing, Open Educational Resources and Practices, distributed education structures, inclusive research practices, and supportive decentralised digital infrastructure can widen access, reduce carbon footprints, and amplify under-represented voices. Each chapter concludes with concrete steps to guide institutions, policymakers, and educators towards meaningful change.

Ultimately, this book is both a critique and a call to action. It challenges universities to re-imagine their role in society and offers a realistic pathway for transforming higher education into a more ethical, inclusive, and sustainable system—one capable of distributing knowledge in ways that genuinely reduce inequity and respond to the urgent challenges of our time.

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